

Ayadhya Prasad Achal's  
**AGADA TANTRA**

**Text Book of Ayurvedic Toxicology**

*(According to Latest CCIM Syllabus)*



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Varanasi

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## List of Abbreviations

SS.Sū	—	Suśruta Saṁhita Sūtrasthāna
H.S.	—	Hārīta Saṁhitā
C.S.Sū	—	Caraka Saṁhita Sūtrasthāna
AH. Sū	—	Aṣṭāṅghṛdaya Sūtrasthāna
C S. Ci	—	Caraka Saṁhita Cikīṭasthāna
R.T.	—	Rasa Taraṅgiṇī
SS.K.	—	Suśruta saṁhita Kalpasthāna
AH.Ut.	—	Aṣṭāṅghṛdaya Uttarasthāna
C.K.	—	Cakrapaṇī
AS.Ut	—	Aṣṭāṅgasiglahā uttarasthāna
CS. Ci	—	Caraka saṁhita Cikīṭasāsthāna
BR.	—	Bhaiṣajya Ratnāvalī
BP	—	Bhāva Prakāśa
Śa.S.Pū	—	Śāraṅgadhara Saṁhitā Pūrva Khaṇḍa
M N	—	Mādhava Nidāna
YR	—	Yogarātnākara
A K	—	Amarakoṣa
H.S.	—	Harita Saṁhitā
RSS	—	Rasendrasārasaṅgraha



## INTRODUCTION TO AGADA TANTRA

### LEARNING OBJECTIVES

- Five synonyms of Agada : *Bheṣajam, Auśadham, Bhaiṣajyam, Agadah, Jayuh*
- Tantra is a treatise or science
- Visatantra is the science dealing with visopasamani Kriya.
- Synonyms of Agad tantra
  - Visa-gara-vairodhika Prasamana
  - *Damṣṭrā vijñāna*
  - Visatantra
  - Jangali
- Astanga Ayurveda - Eight branches of Ayurveda
- Aims of Agad tantra
  - Protection of healthy individual
  - *Management* of affected individual.
- Toxicology - Science of poison
- Branches of toxicology
  - Forensic toxicology
  - Pharmacological toxicology
  - Clinical toxicology
  - Regulatory toxicology

### Introduction

The word 'Agada-tantra' is formed by union of two words- *agada* & *tantra*.

**Agada + Tantra = Agada-Tantra**

### Agada

Ācārya P.V. Sharma, in his work '*Ṣoḍaśāṅgahṛdayam* (षोडशाङ्गहृदयम्)', defines 'agada' in following words —

गा इन्द्रियाणि सद्यो घ्नन्तीत्येते गदाः बुधैः प्रोक्ता ।  
विषमिति विषादजनननादगदस्तेषां प्रतीकारः ॥

*Ṣoḍaśāṅgahṛdayam*. 14.1

Poisons are called 'gada' as they cause loss of function in organs, and 'viṣa' because they produce extreme depression. 'Agada' is their antidote.

### Synonyms of Agada

Ācārya Amarasīṅha (author of *Amarakoṣa*) has enumerated five synonyms for the word 'agada'; these are :

भेषजौषधभैषज्यान्यगदो जायुरित्यपि ॥ A.K. 2.6.50

- *Bheṣajam* ( भेषजम् )
- *Auśadham* ( औषधम् )
- *Bhaiṣajyam* ( भैषज्यम् )
- *Agadah* ( अगदः ) and
- *Jāyuh* ( जायुः ) .

### Tantra

त्रायते शरीरमननेति तन्त्रम् ।

*Tantra* is a treatise or science.

तनोति विपुलार्थान् तत्त्वमन्त्रसमम्बितान् ।

त्राणं च कुरुते यस्मात्तन्त्रमित्यभिधीयते ॥

The science capable of relieving the soul from the cycle of birth, life and death is known as *Tantra*.

### Definition of AgadaTantra

Ācārya Suśruta, in the first chapter (*Vedotpatti adhyāya*) of *Sūtrasthāna*, defines 'Agada-tantra' as :

अगदतन्त्रं नाम सर्पकीटलूतामूषकादिदष्टविषव्यञ्जनार्थं  
विविधविषसंयोगोपशमनार्थं च ॥ SS.Sū. 1.8 (6)

*Agada-tantra* is intended for diagnosis and the management of various poisonings such as with bites of *sarpa* (snakes), *kīṭa* (insects), *lūtā* (spiders) and *mūṣaka* (rats) etc. besides other poisonous substances.

Ācārya Hārīta, author of *Hārīta Saṁhitā*, defines 'Agada-tantra' in following words —

सर्पवृश्चिकलूतानां विषोपशमनी तु या ।

सा क्रिया विषतन्त्रञ्च नाम प्रोक्तः मनीषिभिः ॥

H.S.I. 2.18



*Viṣatantra* is the science dealing with *viṣo-paśamanī kriyā* (anti-poisonous measures) in case of sting by *sarpa* (snakes), *vṛścika* (scorpions), *lūtā* (spiders) etc.

#### Synonyms of Agada-tantra

- *Viṣa-gara-vairodhika praśamana* (विष-गरवैरोधिक प्रशमन)
- *Damṣṭrā vijñāna* (दंष्ट्रा विज्ञान)
- *Viṣatantra* (विषतन्त्र) and
- *Jāṅgali* (जांगली).

#### *Aṣṭāṅga Āyurveda*

#### (Eight branches of *Āyurveda*) and *Agadatantra*

*Ācārya Caraka*, in the 30<sup>th</sup> chapter (*Artheda-śamahāmūliya adhyāya*) of *Sūtrasthāna*, has enlisted eight branches of *Āyurveda*; these are :

तस्यायुर्वेदस्यांगान्यष्टौ; तद्यथा-कायचिकित्सा, शालाक्यं, शल्यापहर्तृकं, विषगरवैरोधिकप्रशमनं, भूतविद्या, कौमारभृत्यकं, रसायनं, वाजीकरणमिति ॥

CS.Sū. 30.28

- *Kāyacikitsā* (general medicine)
- *Śālākyatantram* (medico-surgical system catering to supra-clavicular region)
- *Śalyāpahartṛkam* (surgery)
- *Viṣagaravairodhikapraśamanam* (toxicology)
- *Bhūtavidyā* (demonology)
- *Kaumārabhṛtyakam* (pediatrics including midwifery)
- *Rasāyanam* (rejuvenation therapy)
- *Vājīkaraṇam* (andrology)

*Ācārya Suśruta*, in the 1<sup>st</sup> chapter of *Sūtrasthāna*, has enlisted and defined each branch of *Āyurveda*. He quotes :

तद्यथा-शल्यं, शालाक्यं, कायचिकित्सा, भूतविद्या, कौमारभृत्यम्, अगदतन्त्रं, रसायनतन्त्रं, वाजीकरण-तन्त्रमिति ।

SS.Sū. 1.6

- *Śalyatantram* (surgery)
- *Śālākyatantram* (medico-surgical system catering to supra-clavicular region)
- *Kāyacikitsā* (general medicine)
- *Bhūtavidyā* (demonology)
- *Kaumārabhṛtyam* (pediatrics including midwifery)
- *Agadatantram* (toxicology)

- *Rasāyanatantram* (rejuvenation therapy)
- *Vājīkaraṇatantram* (andrology)

*Ācārya Vāgbhaṭa* (famous author of *Aṣṭāṅga Hṛdayam*), in the 1<sup>st</sup> chapter (*Āyusṣkāmiya adhyāya*) of *Sūtrasthāna*, has enumerated eight branches of *Āyurveda*; these are :

कायबालग्रहोर्ध्वगशल्यदंष्ट्राजरावृषान् ॥

अष्टावंगानि तस्याहुश्चिकित्सा येषु संश्रिता ।

AH.Sū. 1.5

- *Kāyacikitsā* (general medicine)
- *Bālatantram* (pediatrics including midwifery)
- *Grahavijñāna* (demonology)
- *Ūrdhvāṅga-tantra* (medico-surgical system catering to supra-clavicular region)
- *Śalyatantram* (surgery)
- *Damṣṭrā-tantra* (toxicology)
- *Jarāvijñāna* (rejuvenation therapy)
- *Vṛṣavijñāna* (andrology)

*Ācārya Kāśyapa* (father of *Āyurvedic paediatrics* and author of authoritative work '*Kāśyapa Saṁhitā*') has enlisted eight branches of *Āyurveda* in the *Śiṣyopa-kramaṇīya vimānādhyāya*; he quotes :

तस्य कौमारभृत्यं कायचिकित्सा शल्याहर्तृकं शालाक्यं विषतन्त्रं भूततन्त्रमगदतन्त्रं रसायनतन्त्रमिति

*Kāśyapa-saṁhitā Śiṣyopakramaṇīya vimānādhyāya*

The eight branches are - *kāumārabhṛtyam*, *kāyacikitsā*, *śalyāhartṛkam*, *śālākyatantram*, *viṣatantram*, *bhūtatantram*, *agadatantram* and *rasāyanatantram*.

*Ācārya Narahari Paṇḍita* (author of *Rājanighaṇṭu*)

द्रव्याभिधानगदनिश्चयकायसौख्यं शाल्यादिभूतविषग्रह-बालवैद्यम् । विद्याद्..... ॥

- *Dravyābhidhāna*
- *Gadaniścaya*
- *Kāyasaukhyam*
- *Śalyatantram*
- *Śālākyatantram*
- *Bhūtavidyā*
- *Agadatantra*
- *Bālavaidyam*

These are eight branches of *Āyurveda*. (See Table No. 1)



Table 1.1

Caraka-saṁhitā	Suśruta-saṁhitā	Aṣṭāṅgahr̥dayam	Kāśyapa-saṁhitā	Rājanīghaṇṭu
CS.Sū. 30/28	SS.Sū. 1/6	A.H.Sū. 1/5	KS.Vi.	20/42
Kāyacikitsā	Śalyatantram	Kāyacikitsā	Kāumārabhṛtyam	Dravyābhidhāna
Śālākyatantram	Śālākyatantram	Bālatantram	Kāyacikitsā	Gadaniścaya
Śalyāpahartṛkam	Kāyacikitsā	Grahavijñāna	Śalyāhartṛkam	Kāyasaukhyam
Viṣāgaravairodhika-praśamanam	Bhūtavidyā	Ūrdhvāṅga-tantra	Śālākyatantram	Śalyatantram
Bhūtavidyā	Kaumārabhṛtyam	Śalyatantram	Viṣatantram	Śālākyatantram
Kaumārabhṛtyakam	Agadatantram	Damṣṭrā-tantra	Bhūtantram	Bhūtavidyā
Rasāyanam	Rasāyanatantram	Jarāvijñāna	Agadatantra	Agadatantra
Vājīkaraṇam	Vājīkaraṇatantram	Vṛṣavijñāna	Rasāyanatantram	Bālavaidyam

### Aims of Agada-tantra and its utility

Similar to *Āyurveda Agada-tantra*, too, has two-fold aims :

- Protection of healthy individuals from poisons and
- Management of individuals afflicted from poisons.

### The Literature of Agada-tantra

#### Caraka-Saṁhitā

- Reference - CS.Ci. 23 (*Viṣacikitsitam adhyāya*)

#### Suśruta-Saṁhitā

- Reference - Complete Kalpa-sthāna (chapter 1 to 8)
- SS.K. 1 *Annapānarakṣākalpa adhyāya*
- SS.K. 2 *Sthāvaraviṣavijñānīya adhyāya*
- SS.K. 3 *Jaṅgamaṣavijñānīya adhyāya*
- SS.K. 4 *Sarpadaṣṭaviṣavijñānīya adhyāya*
- SS.K. 5 *Sarpadaṣṭaviṣacikitsita kalpa adhyāya*
- SS.K. 6 *Dundubhisvanīyakalpa adhyāya*
- SS.K. 7 *Mūṣikakalpa adhyāya*
- SS.K. 8 *Kīṭakalpa adhyāya*

#### Aṣṭāṅga-saṅgraha : Uttarasthānam

- Ch. 40 *Viṣapraṭiṣedha adhyāya*
- Ch. 41 *Sarpaviṣavijñānīya adhyāya*
- Ch. 42 *Sarpaviṣapraṭiṣedha adhyāya*

- Ch. 43 *Kīṭaviṣapraṭiṣedha adhyāya*
- Ch. 44 *Lūtāpraṭiṣedha adhyāya*
- Ch. 45 *Pratyekalūtāpraṭiṣedha adhyāya*
- Ch. 46 *Mūṣikālarakapraṭiṣedha adhyāya*
- Ch. 47 *Viṣopadravapraṭiṣedha adhyāya*
- Ch. 48 *Viṣopayoga adhyāya*

#### Aṣṭāṅga-hṛdayam : Uttarasthānam

- Ch. 35 *Viṣapraṭiṣedha adhyāya*
- Ch. 36 *Sarpaviṣapraṭiṣedha adhyāya*
- Ch. 37 *Kīṭalūtādiviṣapraṭiṣedha adhyāya*
- Ch. 38 *Mūṣikālarakaviṣapraṭiṣedha adhyāya*

#### Published Literature on Agada-tantra

- *Agada-tantra*  
Dr. Ayodhya Prasad 'Achal'
- *Vyavahārāyurveda vijñāna*  
Dr. Indra-mohan Jha 'Sacchana'
- *Vyavahārāyurveda, Viṣavijñāna evam Agada-tantra*  
Dr. Yugal Kishor Gupta
- *Vyavahārāyurvedaevam Vidhivaidyaka*  
Dr. Ayodhya Prasad 'Achal'
- *Vidhivaidyaka, Vyavahārāyurveda vijñāna*  
Charuchandra Pathak
- *Agada-tantra - Viṣa-cikitsā*  
Dr. AjayKumar Sharma
- *Agada-tantra*  
Dr. HC Gupta and Dr. VK Verma
- *A Textbook of Agada-tantra*  
Dr. U.R. Sekhar Namburi



- Textbook of *Agada-tantra*  
Dr. Nitin Urmaliya
- *Agada-tantra & Vyavahārāyurveda*  
Prof. K. Nishteswar & Dr. A. Anil Kumar
- Textbook of *Agada-Tantra*  
Dr. Ashwin kumar S. Bharati
- Illustrated *Agada-Tantra*  
Dr. P.V.N.R. Prasad

### Toxicology

#### Definition

The science of poisons, their source, toxicity and lethal dose chemical composition, action, tests and treatment or antidotes is known as 'Toxicology'.

The word 'Toxicology' is derived from the Greek word "Toxicon", which was used as a poisonous substance to arrow heads. In ancient India, poisons were known (arsenic, aconite and opium). In Mahabharata, the Bhimsen, was poisoned by his cousin Duryodhana whom he had defeated in a duel.



#### Branches of Toxicology

- Forensic Toxicology
- Pharmacological Toxicology
- Clinical Toxicology
- Regulatory Toxicology
- ♦ **Forensic Toxicology** : Deals with the harmful effects of chemicals on human body in medicolegal aspects.
- ♦ **Pharmacological toxicity** : Assessing the toxicity of therapeutic agents.
- ♦ **Clinical Toxicology** : Deals with diseases caused by abnormal exposure to chemical substances.



- ♦ **Regulatory toxicology** : Deals with developing of regulations and other strategies for reducing and controlling exposure to dangerous chemicals by use of scientific or research data.

#### Important facts about Toxicology

- Paracelsus (1493 - 1541) swiss chemist said - All things are poison, and nothing is without poison; only the dose permits something not to be poisonous.
- Father of Toxicology - Mathew Joesph Orfila (1787-1853), a spanish chemist.
- Toxinology - The science dealing with toxins produced by living organisms, including plants, animals and microbes.

#### *Punarvasu Ātreya's words for Maharṣi Agniveśa*

*Punarvasu Ātreya* informs *Maharṣi Agniveśa* about the topics he would elaborate in the twenty third chapter of *Cikitsāsthāna* of *Caraka Saṁhitā*; he quotes :

प्रागुत्पत्तिं गुणान् योनिं वेगाँल्लिंगान्युपक्रमान् ।

विषस्य ब्रुवतः सम्यग्गनिवेशनिबोधमे ॥ CS.Ci. 23.3

i.e. O! *Agniveśa* listen to me cautiously. I shall elaborate *viṣa* (poison) with reference to the following facets :

- *prāgutpatti* (mythological origin) of *viṣa* (poison)
- *guṇa* (properties) of *viṣa* (poison)
- *yoni* (source) of *viṣa* (poison)
- *vega* (stages of virulence) of *viṣa* (poison)
- *liṅga* (signs and symptoms) of *viṣa* (poison) and
- *upakrama* (therapaeutic modules) for treating *viṣa* (poison).



## VIṢA (POISON) - AN INTRODUCTION

### LEARNING OBJECTIVES

- Visa (poison) is of two types
  - Jāṅgama (Mobile)
  - Sthāvara (immobile)
- Because of producing viṣāda it came to be known as 'Viṣa' poison.
- Kṣveda, garala and viṣa are synonymous
- Visa is of two types (Suśruta & Carak)
  - Sthāvara
  - Jāṅgama
- Visa is of two types (Vāgbhāṭa)
  - Akṛtrima viṣa (Natural)
  - Kṛtrima viṣa (Artificial)
- Visa is of three types (Kaiyadeva Nighaṅṭu)
  - Sthāvara viṣa
  - Jāṅgama viṣa
  - Dusi - viṣa
- Mahāpanca - viṣas are (Raja Nighaṅṭu) Srngika, Kalakuta, Mustaka, Vatsanabha Saktuka
- Upviṣas (five) are (Raja Nighaṅṭu) Snuhi, arka, Karavira, langali, viṣa mustika
- Visa - 9 in nos. - (RT 24.7-8)
- Upaviṣas - 11 in nos. - (RT 24.163 - 164)
- Visa - Avayakta Rasa
- Sthāvara viṣa - 21 (Charak)
- Jāṅgama viṣa - 16 (shusruta) Adhithana
- Jāṅgama viṣa moves dawnwards
- Sthāvara viṣa moves Upwards
- Visa - 8 (vega), 10 (Guna), 24 (Upakarms)
- Rakta (Blood) - a viṣadhana (vehicle of poison)

### Etymology of viṣa (poison)

As per *Prāṇācārya Śrī Sadānanda Śarmā*- author of *Rasa-taraṅgiṇī* -

दृष्ट्वैतद् यद्विषीदन्ति जनास्तस्माद्विषं मतम् ।  
नरं वा विषिणीत्येतन्मृत्युपाशैस्तता विषम् ॥

*Rasatarāṅgiṇī* 24.1

The very sight of one that causes *viṣāda* (depression) among the living beings is a *viṣa* (poison); alternatively, the one that entraps human beings in *mṛtyupāśa* (death rope) and destroys him is a *viṣa* (poison).

### Mythological origin / first origin of viṣa (poison)

- *Ācārya Caraka*, in the twenty-third chapter of *Cikitsā-sthāna*, has narrated a story explaining the first origin or the mythological origin of *viṣa* (poison); he quotes :

अमृतार्थं समुद्रे तु मथ्यमाने सुरासुरैः ।  
जज्ञे प्रागमृतोत्पत्तेः पुरुषो घोरदर्शनः ॥  
दीप्ततेजाश्चतुर्दंष्ट्रो हरिकेशोऽनलेक्षणः ।  
जगद्विषण्णं तं दृष्ट्वा तेनासौ विषसंज्ञितः ॥  
जंगमस्थावरायां तद्योनौ ब्रह्मा न्ययोजयत् ।  
तदम्बुसम्भवं तस्माद् द्विविधं पावकोर्षमम् ॥

CS.Ci. 23.4-6

In the days of yore, while the *samudra* (ocean) was being churned by the *suras* (gods) and the *asura* (demons) for obtaining *amṛta* (ambrosia), even prior to the production of *amṛta* (ambrosia), a *ghora-darśana puruṣa* (ferocious-looking person) who was resplendent with *teja* (aura), and had four *daṁṣṭrās* (fangs), *harikeśa* (twany hair) and *anala-akṣa* (fiery eyes) emerged. The world became *viṣaṅṅa* (despaired) at his sight because of which he was called *viṣa* (poison).

Lord *Brahmā* deposited this poison in *jāṅgama* (mobile) and *sthāvara* (immobile) things (of his creation). Therefore, *viṣa* (poison) which originated from *ambu* (water) is of two types. It resembles *pāvaka* or *agni* (fire).

- *Ācārya Suśruta*, father of Surgery and celebrated author of *Suśruta Saṁhitā*,



also has recounted the mythological origin of *viṣa* (poison) in the 3rd chapter {*Jaṅgamaviṣavijñānīya adhyāya*} of *Kalpasthāna*; he says :

प्रजामिमामात्मयोनेर्ब्रह्मणः सृजतः किल ।  
अकरोदसुरो विघ्नं कैटभो नाम दर्पितः ॥  
तस्य क्रुद्धस्य वै वक्त्राद्ब्रह्मणस्तेजसो निधेः ।  
क्रोधो विग्रहवान् भूत्वा निपपातातिदारुणः ॥  
स तं ददाह गर्जन्तमन्तकाभं महाबलम् ।  
ततोऽसुरं घातयित्वा तत्तेजोऽवर्धताद्भुतम् ॥  
ततो विषादो देवानामभवत्तं निरीक्ष्य वै ।  
विषादजननत्वाच्च विषमित्यभिधीयते ॥  
ततः सृष्ट्वा प्रजाः शेषं तदा तं क्रोधमीश्वरः ।  
विन्यस्तवान् स भूतेषु स्थावरेषु चरेषु च ॥

SS.K. 3.18-22

While *Brahmaṇa* (The Creator) was creating the universe a demon named *Kaiṭabha*, out of conceit, put obstacles which angered *Brahmaṇa*, the abode of powers, from mouth of whom the anger in physical form, a terribly fierce one, fell down. It burnt to ashes the roaring demon, mighty and like death - god. Thereafter its miraculous lustre developed further which, on the very sight, produced languor in gods; because of producing *viṣāda* (languor), it came to be known as '*viṣa*' (Poison).

Then, after creating the progeny, the Lord put the remnant anger in beings - *jaṅgama* (mobile) and *cara* or *sthāvara* (immobile).

### Definition of *Viṣa* (Poison)

- *Ācārya Suśruta*, in the 3<sup>rd</sup> chapter {*Jaṅgama-viṣavijñānīya adhyāya*} of *Kalpasthāna*, defined *viṣa* (poison) as :

विषादजननत्वाच्च विषमित्यभिधीयते ॥ SS.K. 3.21

Because of producing *viṣāda* (languor), it came to be known as '*viṣa* (poison)'.  
 ■ *Ācārya Caraka* defines *viṣa* (poison) as :

जगद्विषण्णं तं दृष्ट्वा तेनासौ विषसंज्ञितः ॥

CS.Ci. 23.5

The world became *viṣaṅṅa* (despaired) at its sight because of which it is called a *viṣa* or poison.

### Synonyms of *Viṣa* (poison)

- As per *Ācārya Amarasimha* -  
क्ष्वेडस्तु गरलं विषम् । *Amarakośa* 1.9.9  
*Kṣveḍa*, *garala* and *viṣa* are synonymous.
- *Kavirāja Sadānanda Śarmā* has enlisted following synonyms for *viṣa* (poison):  
विषं क्ष्वेडञ्च गरलं कालकूटञ्च तन्मतम् । R.T. 24.2

- ◆ *viṣa*
- ◆ *garala*
- ◆ *kṣveḍa*
- ◆ *kālakūṭa*

- *Ācārya Kaiyadeva Paṇḍita*, in his work on medicinal botany '*Kaiyadeva Nighaṅṭu*', has given following synonyms for *viṣa* :  
विषं क्ष्वेडो रसं तीक्ष्णं गरलं जीवितापहम् ।

K.N. Miśrakavarga.218

- ◆ *viṣa*
- ◆ *kṣveḍa*
- ◆ *rasa*
- ◆ *tīkṣṇa*
- ◆ *garala*
- ◆ *jīvitāpaham*

Table 2.1 : List of synonyms of *viṣa* given by various scholars

S. No.	Ācārya Amara-simha	Kavirāja Sadānanda Śarmā	Ācārya Kaiyadeva Paṇḍita	Ācārya Ramānātha Dvivedi
1.	<i>Kṣveḍa</i>	<i>Kṣveḍa</i>	<i>Kṣveḍa</i>	<i>Kṣveḍa</i>
2.	<i>Garala</i>	<i>Garala</i>	<i>Garala</i>	<i>Garala</i>
3.	-	<i>Kālakūṭa</i>	-	-
4.	-	-	<i>Rasa</i>	-
5.	-	-	<i>Tīkṣṇa</i>	-
6.	-	-	<i>Jivitāpaham</i>	-
7.	-	-	-	<i>Gara</i>
8.	-	-	-	<i>Gada</i>
9.	-	-	-	<i>Mugara</i>
10.	-	-	-	<i>Kalakula</i>
11.	-	-	-	<i>Kalakaḷpa</i>

### Classification of *Viṣa* (poison)

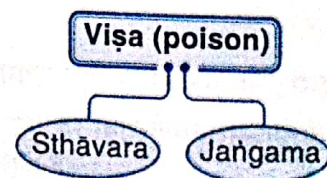
As per *Ācārya Suśruta* :

स्थावरं जंगमं चैव द्विविधं विषमुच्यते ।

दशाधिष्ठानमाद्यं तु द्वितीयं षोडशाश्रयम् ॥ SS.K. 2.3

*Viṣa* (poison) is of two types :

- *Sthāvara* (poison from immobile source)
- *Jaṅgama* (poison from mobile source).





As per Ācārya Caraka :

जंगमस्थावरायां तद्योनौ ब्रह्मा न्ययोजयत् ।  
तदम्बुसम्भवं तस्माद् द्विविधं पावकोपमम् ॥

CS.Ci. 23.5

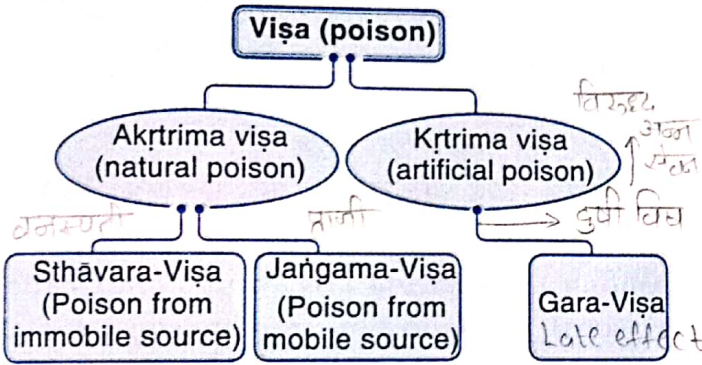
Lord *Brahmā* deposited the *viṣa* (poison) in *jaṅgama* (mobile) and *sthāvara* (immobile) things of his creation. Therefore, *viṣa* (poison) originates from *ambu* (water) is of two types.

As per Ācārya Vāgbhaṭa :

स्थावरं जंगमं चेति विषं प्रोक्तमकृत्रिमम् ॥  
कृत्रिमं गरसंज्ञं तु क्रियते विविधौषधैः । AH.Ut. 35.5

*Viṣa* (poison) is of two types -

- *Akr̥trima viṣa* (natural poison)
- *Kr̥trima viṣa* (artificial poison)



*Akr̥trima-viṣa* (natural poison) is further classified into *sthāvara-viṣa* (poison from immobile source) and *jaṅgama-viṣa* (poison from mobile source). *Kr̥trima-viṣa* (artificial poison) is also termed *gara-viṣa*.

Ācārya Kaiyadeva Paṇḍita's view :

स्थावरं जांगमं दूषीविषं चेति विषं त्रिधा ।

K.N. Miśrakavarga.219

*Viṣa* (poison) is of three kinds; viz. *sthāvara-viṣa* (poison from immobile source), *jaṅgama-viṣa* (poison from mobile source) and *dūṣī-viṣa* (polluting poison).

Ācārya Narahari Paṇḍita, author of '*Rāja-nighaṇṭu*', has categorized *viṣa* (poison) into following two :

- ◆ *Mahāpañca-viṣa*
- ◆ *Upaviṣa*

शृंगिकः कालकूटश्च मुस्तको वत्सनाभकः ।  
सक्तुकश्चेति योगोऽयं महापञ्चविषाभिधः ॥  
स्तुहार्ककरवीराणि लांगली विषमुष्टिका ।  
एतान्युपविषाण्याहु पञ्च पाण्डित्यशालिनः ॥

RN. Miśrakādivargaḥ. 42-43

*Mahāpañca-viṣas* are :

- ◆ *śr̥ṅgika*
- ◆ *mustaka*
- ◆ *saktuka*
- ◆ *kālakūṭa*
- ◆ *vatsanābha*

Five *upaviṣas* are :

- ◆ *snuhī*
- ◆ *lāṅgalī*
- ◆ *arka*
- ◆ *viṣamuṣṭika*.
- ◆ *karavīra*

- *Kavirāja Sadānanda Śarmā* has categorized *viṣa* into two, viz. *viṣa* and *upaviṣa*. Compared to *viṣa*, *upaviṣas* are mild in *vīrya* (potency) and *prabhāva* (effect).

*Viṣa* is nine in number : *Mahaviṣa*

हालाहलः कालकूटः शृंगकश्च प्रदीपनः ।  
सौराष्ट्रिको ब्रह्मपुत्रो हारिद्रः सक्तुकस्तथा ॥  
वत्सनाभ इति ज्ञेयो विषभेदा अमी नव ।  
रसे रसायनादौ च वत्सनाभः प्रशस्यते ॥ RT. 24.7-8

These are *hālāhala*, *kālakūṭa*, *śr̥ṅgika*, *pradīpana*, *saurāṣṭrika*, *brahmaputra*, *hāridraka*, *saktuka* and *vatsanābha*. is best

*Upaviṣas* are eleven in number :

विषतिन्दुकबीजं च त्वहिफेनञ्च रेचकम् ।  
धत्तूरबीजं विजया गुञ्जा भल्लातकाह्वयः ॥  
अर्कक्षीरं स्नुहीक्षीरं लांगली करवीरकम् ।  
समाख्यातो गणोऽयं तु बुधैरुपविषा भिधः ॥

RT. 24.163-164

These are - *bīja* (seeds) of *viṣatinduka*, *ahiphena*, *recaka*, *bīja* (seeds) of *dhattūra*, *vijayā*, *guñjā*, *bhallātaka*, *arka-kṣīra*, *snuhī-kṣīra*, *lāṅgalī* and *karavīra*.

### Reason for multi-rasa (taste) nature of *Viṣa* (poison)

Ācārya Suśruta says :

यथाऽव्यक्तरसं तोयमन्तरीक्षान्महीगतम् ।  
तेषु तेषु प्रदेशेषु रसं तं तं नियच्छति ॥  
एवमेव विषं यद्यदुदुव्यं व्याप्यावतिष्ठते ।  
स्वभावादेव तं तस्य रसं समनुवर्तते ॥ SS.K. 3.23-24

As *antarīkṣa toya* (rain-water) has *avyakta rasa* (unmanifest taste) but after coming in contact with *mahī* (earth) in different regions acquires respective *rasa* (tastes), the *viṣa* (poison), similarly, acquires naturally the *rasa* (taste) of the substance where it stays in.



### Adhiṣṭhāna (site) of Viṣa (poison)

Adhiṣṭhāna (site) of *sthāvara viṣa*  
(immobile/static poison)

Sage *Suśruta*, in the second chapter of *Kalpasthāna*, has designated ten sites for *sthāvara viṣa*; in his words :

मूलं पत्रं फलं पुष्पं त्वक् क्षीरं सार एव च ।

निर्यासो घातवश्चैव कन्दश्च दशमः स्मृतः ॥ SS.K. 2.3

Adhiṣṭhāna (sites) of *sthāvara viṣa* (immobile/static poison) are:

- ◆ *mūla* (root)
- ◆ *patra* (leaves)
- ◆ *phala* (fruit)
- ◆ *puṣpa* (flower)
- ◆ *tvak* (bark)
- ◆ *kṣīra* (sap)
- ◆ *sāra* (heart-wood)
- ◆ *niryāsa* (extract)
- ◆ *dhātu* (minerals)
- ◆ *kanda* (bulb)

Table 2.2 : Examples of various *sthāvara viṣas*  
(as enumerated by Sage *Suśruta*)

S. No.	Adhiṣṭhāna (sites)	Number of viṣas
1	<i>Mūla-viṣa</i>	8
2	<i>Patra-viṣa</i>	5
3	<i>Phala-viṣa</i>	12
4	<i>Puṣpa-viṣa</i>	5
5	<i>Tvak-viṣa, Sāra-viṣa &amp; Niryāsa-viṣa</i>	7
6	<i>Kṣīra-viṣa</i>	3
7	<i>Dhātu-viṣa</i>	2
8	<i>Kanda-viṣa</i>	13
	Total	55

Further classification of *kanda-viṣa* (bulb poisons)

■ As per *Ācārya Suśruta* :

चत्वारि वत्सनाभानि मुस्तके द्वे प्रकीर्तिते ।

षट् चैव सर्षपाण्याहुः शेषाण्येकैकमेव तु ॥ SS.K. 2.6

Among thirteen *kanda-viṣas* (bulb poisons) *vatsanābha* is of four types, *mustaka* of two types and *sarṣapa* of six types while the remaining ones are one each.

*Ācārya Caraka*, in the 23<sup>rd</sup> chapter (*Viṣacikitsitam adhyāya*) of *Cikitsāsthāna*, has given a list of more than twenty-one drugs that belong to the category of *sthāvara viṣa* (immobile/ static poisons) and whose *mūla* (roots) are poisonous. These are :

मुस्तकं पौष्करं क्रौञ्चं वत्सनाभं बलाहकम् ।  
कर्कटं कालकूटं च करवीरसंज्ञकम् ॥  
पालकेन्द्रायुधं तैलं मेचकं कुशपुष्पकम् ।  
रोहिषं पुण्डरीकं च लांगल्यक्यञ्जनाभकम् ॥  
संकोचं मर्कटं शृंगीविषं हालाहलं तथा ।  
एवमादीनि चान्यानि मूलजानि स्थिराणि च ॥

CS.Ci. 23.11-13

- ◆ *Mustaka*
- ◆ *Puṣkara*
- ◆ *Krauñca*
- ◆ *Vatsanābha*
- ◆ *Balāhaka*
- ◆ *Karkaṭa*
- ◆ *Kālakūṭa*
- ◆ *Pālaka*
- ◆ *Karavīra*
- ◆ *Indrāyudha*
- ◆ *Taila*
- ◆ *Meghaka*
- ◆ *Kuśapuṣpaka*
- ◆ *Rohiṣa*
- ◆ *Lāṅgalakī*
- ◆ *Puṇḍarīka*
- ◆ *Añjanābhaka*
- ◆ *Saikoca*
- ◆ *Markaṭa*
- ◆ *Śṛṅgīviṣa*
- ◆ *Hālāhala etc.*

■ *Ācārya Cakrapāṇi* says :

स्थावरजे विषे मूलजानीति पदं मूर्लजस्य बहुत्वात्  
प्राधान्याच्च । Ck. on CS.Ci. 23.11-13

Among the *sthāvara viṣas* (immobile/static poisons), the *mūla-viṣas* (root poisons) are in plenty, and these are the vital ones. Further he states :

कन्दस्त्वह मूलविशेषत्वान्मूलशब्देनैव गृहीतः ।

Ck. on CS.Ci. 23.11-13

*Kanda* (rhizome) is a form of *mūla* (root). In the above text, some *kandas* (rhizomes) are included under the category of *mūla-viṣas* (root poisons).

Adhiṣṭhāna (site) of *jaṅgama viṣa*  
(mobile / portable poisons)

*Ācārya Suśruta*, in the 3<sup>rd</sup> chapter of *Kalpasthāna*, has listed sixteen sites of *jaṅgama viṣas* (mobile/portable poison). These are :

जंगमस्य विषस्योक्तान्यधिष्ठानानि षोडश ।

समासेन मया यानि विस्तरस्तेषु वक्ष्यते ॥

तत्र, दृष्टिनिःश्वासदंष्ट्रानखमूत्रपुरीषशुक्रलालार्तवमुख-  
सन्दंशविशर्धिततुण्डास्थिपित्तशूकशवानीति ॥

SS.K. 3.3-4

- ◆ *dr̥ṣṭi* (sight/ vision)
- ◆ *niḥśvāsa* (breath)



- ◆ *damṣṭrā* (canine teeth)
- ◆ *nakha* (nails)
- ◆ *mūtra* (urine)
- ◆ *purīṣa* (faeces)
- ◆ *śukra* (semen)
- ◆ *lālā* (saliva)
- ◆ *ārtava* (menstrual blood)
- ◆ *mukha-sandaṁśa* (mouth bite)
- ◆ *viśardhita* (flatus)
- ◆ *tuṇḍa* (beak)
- ◆ *asthi* (bone)
- ◆ *pitta* (bile)
- ◆ *śūka* (bristles)
- ◆ *śava* (cadaver)

Table 2.3

S.No.	Adhiṣṭhāna (site) of jaṅgama viṣa	Names
1.	<i>drṣṭi</i> (sight/ vision) & <i>niḥśvāsa</i> (breath)	<ul style="list-style-type: none"> <li>• <i>divya sarpa</i> (celestial snakes)</li> </ul>
2.	<i>damṣṭrā</i> (fangs)	<ul style="list-style-type: none"> <li>• <i>bhauma sarpa</i> (earthly snakes)</li> </ul>
3.	<i>damṣṭrā</i> (canine teeth) & <i>nakha</i> (nails)	<ul style="list-style-type: none"> <li>• <i>mārjāra</i> (cat)</li> <li>• <i>śva</i> (dog)</li> <li>• <i>vānara</i> (monkey)</li> <li>• <i>makara</i> (crocodile)</li> <li>• <i>maṇḍūka</i> (frog)</li> <li>• <i>pākamatsya</i></li> </ul>
		<ul style="list-style-type: none"> <li>• <i>godhā</i> (alligator)</li> <li>• <i>śambūka</i> (snail)</li> <li>• <i>pracalāka</i> (chamelion)</li> <li>• <i>grhagodhikā</i> (house lizard)</li> <li>• <i>catuṣpāda</i> (quadrupeds)</li> <li>• <i>kīṭa</i> (insects) etc.</li> </ul>
4.	<i>mūtra</i> (urine) & <i>purīṣa</i> (faeces)	<ul style="list-style-type: none"> <li>• <i>cipiṭa</i></li> <li>• <i>picciṭaka</i></li> <li>• <i>kaṣāyavāsika</i></li> <li>• <i>sarṣapaka</i></li> </ul>
		<ul style="list-style-type: none"> <li>• <i>toṭaka</i></li> <li>• <i>varcaḥkīṭa</i></li> <li>• <i>kauṇḍinyaka</i></li> </ul>
5.	<i>śukra</i> (semen)	<ul style="list-style-type: none"> <li>• <i>mūṣika</i> (rat)</li> </ul>
6.	<i>lālā</i> (saliva), <i>mūtra</i> (urine), <i>purīṣa</i> (faeces), <i>mukhasandaṁśa</i> (mouth bite), <i>nakha</i> (nails), <i>śukra</i> (semen), <i>ārtava</i> (menstrual blood)	<ul style="list-style-type: none"> <li>• <i>lūtā</i> (spider)</li> </ul>
7.	<i>āra</i> (sting)	<ul style="list-style-type: none"> <li>• <i>vṛścika</i> (scorpion)</li> <li>• <i>viśvambhara</i></li> <li>• <i>varaṭi</i> (wasp)</li> <li>• <i>rājiva</i></li> </ul>
		<ul style="list-style-type: none"> <li>• <i>matsya</i></li> <li>• <i>uccīṅga</i></li> <li>• <i>samudravṛścika</i> (sea scorpion)</li> </ul>
8.	<i>mukhasandaṁśa</i> (mouth bite), <i>viśardhita</i> (flatus), <i>mūtra</i> (urine) & <i>purīṣa</i> (faeces),	<ul style="list-style-type: none"> <li>• <i>citraśiraḥ</i></li> <li>• <i>sarāva</i></li> <li>• <i>kurdiśata</i></li> </ul>
		<ul style="list-style-type: none"> <li>• <i>dārukāri</i></li> <li>• <i>medaka</i></li> <li>• <i>śārikāmukha</i></li> </ul>
9.	<i>mukhasandaṁśa</i> (mouth bite)	<ul style="list-style-type: none"> <li>• <i>makṣikā</i> (flies)</li> <li>• <i>kaṇabha</i></li> <li>• <i>jalāyukā</i> (leech)</li> </ul>
10.	<i>asthi</i> (bone)	<ul style="list-style-type: none"> <li>• <i>viśahata asthi</i> (bones of poison killed animals)</li> <li>• bone of <i>sarpakaṇṭaka</i></li> <li>• bone of <i>varaṭi</i></li> <li>• <i>matsya asthi</i> (fish bone)</li> </ul>
11.	<i>pitta</i> (bile)	<ul style="list-style-type: none"> <li>• <i>śakuli matsya</i> (fish variety)</li> <li>• <i>raktarāji</i></li> <li>• <i>varakī</i></li> <li>• <i>matsya</i> (fish)</li> </ul>
12.	<i>śūka</i> (bristles) & <i>tuṇḍa</i> (beak)	<ul style="list-style-type: none"> <li>• <i>sūkṣmatuṇḍa</i></li> <li>• <i>uccīṅga</i></li> <li>• <i>varaṭi</i></li> <li>• <i>śatapadi</i></li> </ul>
		<ul style="list-style-type: none"> <li>• <i>śūka</i></li> <li>• <i>valabhikā</i></li> <li>• <i>śṛṅgi</i></li> <li>• <i>bhramara</i></li> </ul>
13.	<i>śava</i> (cadaver)	<ul style="list-style-type: none"> <li>• <i>kīṭa</i> (insects)</li> <li>• <i>sarpa</i> (snakes)</li> </ul>



Ācārya Caraka has given a list of more than seventeen drugs that belong to the category of *jaṅgama viṣa* (mobile/ portable poisons) and whose *daṁṣṭrā* (fangs) carry toxins. These are :

सर्पाः कीटोन्दुरा लूता वृश्चिका गृहगोधिकाः ।  
जलौकामत्स्यमण्डूकाः कणभाः सकृकण्टकाः ॥  
श्वसिंहव्याघ्रगोमायुतरक्षुनकुलादयः ।  
दंष्ट्रिणो ये विषं दंष्ट्रोत्थं जंगमं मतम् ॥

CS.Ci. 23.9-10

- |                          |                            |
|--------------------------|----------------------------|
| ◆ <i>Sarpa</i> (snakes)  | ◆ <i>Kaṇabha</i> (locusts) |
| ◆ <i>Kīṭa</i> (insects)  | ◆ <i>Kṛkaṅṭaka</i>         |
| ◆ <i>Undura</i> (rats)   | (chamelion)                |
| ◆ <i>Lūtā</i> (spiders)  | ◆ <i>Śva</i> (dog)         |
| ◆ <i>Vṛścika</i>         | ◆ <i>Simha</i> (lion)      |
| (scorpions)              | ◆ <i>Vyāghra</i> (tiger)   |
| ◆ <i>Gṛhagodhikā</i>     | ◆ <i>Gomāyu</i> (jackal)   |
| (house lizard)           | ◆ <i>Tarakṣu</i> (hyena)   |
| ◆ <i>Jalaukā</i> (leech) | ◆ <i>Nakula</i>            |
| ◆ <i>Matsya</i> (fish)   | (mongoose)                 |
| ◆ <i>Maṇḍūka</i> (frog)  |                            |

### Gati (Movement) of viṣa (poison)

As per Ācārya Caraka :

जंगमं स्यादधोभागमूर्ध्वभागं तु मूलजम् । CS.Ci. 23.17  
*Jaṅgama-viṣa* (animal poison) moves downwards in the alimentary canal and *sthāvāra viṣa* (inanimate poison) moves upwards.

### Specialty of viṣa (poison)

As per Ācārya Caraka :

अष्टवेगं दशगुणं चतुर्विंशत्युपक्रमम् । CS.Ci. 23.7  
The *viṣa* (poison) has eight *vegas* (virulent stages), *gunas* (qualities) and twenty four *upakramas* (therapeutic modules).

### Ill-effects of viṣa (poison)

As per Ācārya Caraka :

क्षरति विषतेजसाऽसृक् तत् खानि निरुध्य मारयति  
जन्तुम् । पीतं मृतस्य हृदि तिष्ठति दष्टविद्धयोर्दशदेशे  
स्यात् ॥

CS.Ci. 23.32

The *teja* (heat/ strength) of *viṣa* (poison) causes leaking of *asṛk* (blood) and there by causing obstruction in *kha* (*srotas* - channels) and thus killing the individual. If the *viṣa* (poison) is

consumed orally, then it get lodged in the *hr̥daya* (heart); if it is administered through the *daṁṣṭā* (bite/sting), then it will be at the *daṁṣā deśa* (site of bite).

As per Ācārya Vṛddha Vāgbhaṭa :

व्याप्यैवं सकलं देहमुपरुध्य च वाहिनीः ।  
विषं विषमिव क्षिप्रं प्राणानस्य निरस्यति ॥  
पीतं मृतस्य हृदये जग्धदिग्धाभिविद्धयोः ।  
दंशे तिष्ठति भूयिष्ठं सर्वतः पिण्डितं विषम् ॥  
नाद्यादतो विशेषेण तेषा मांसं तदाश्रयम् ।

AS.Ut. 40.13-14

### Natural aggravation and alleviation of viṣa (poison)

As per Ācārya Caraka :

तद्वर्षास्वम्बुयोनित्वात् संक्लेदं गुडवद् गतम् ॥  
सर्पत्यम्बुधरापाये तदगस्त्यो हिनस्ति च ।  
प्रयाति मन्दवीर्यत्वं विषं तस्माद् घनात्यये ॥

CS.Ci. 23.7-8

The *viṣa* (poison) has its *yonī* (origin) as *ambu* (water), becomes *saṅkledī* (sticky) like a *guḍa* (jaggery) when it comes in contact with *jala* (water), and spreads during the *ambudharā* (rainy) season. However, the star *agastya* at the end of rainy season, neutralizes its effect. Therefore, the *viṣa* (poison) attains *manda vīryatvam* (milder or poorer potency) during *ghanātyaya* (post rainy season).

### Rakta (blood) - a viṣādhāna (vehicle of poison)

As per Ācārya Caraka -

रक्तं हि विषाधानं वायुरिवाग्नेः ।

CS.Ci. 23.42

*Rakta* (blood) is the *viṣādhāna* (vehicle of poison) as the *vāyu* (wind) is of *agni* (fire).

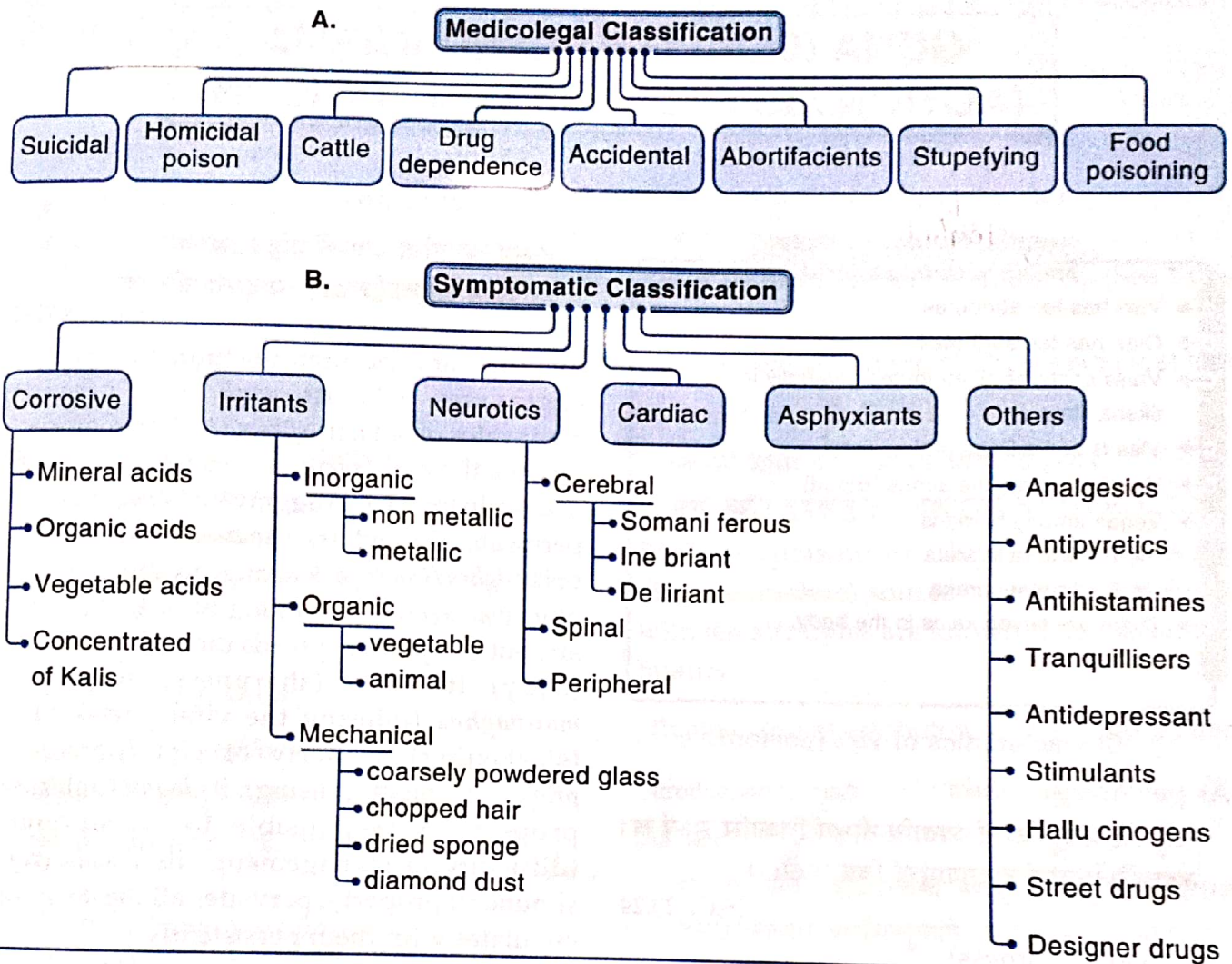
### Poison

#### Definition

A substance which, on digestion, inhalation, absorption, application, injection or development within the body, in relatively small amounts, produces injury to the body by its chemical action is known as 'Poison'.



### Classification of Poison



■ **Suicidal Poison** : Poisons used for suicidal purpose are organophosphates, opium, barbiturates, potassium cyanide, copper sulphate etc.

A suicidal poison is easy to accessible, cheap, might be tasteless and easy to administered in drink and food items. Suicidal poison is very quick in action and difficult to diagnose. Gives a painless death.

■ **Homicidal poison** : Poisons used for homicidal purpose are Aconite, arsenic, oleander, madar, strychnine organophosphorus compounds etc. Opium is sometimes used to kill children. A Homicidal Poison is colourless, odourless, tasteless and easy to access. There should be no antidote and no possibility of its detection & very difficult to diagnose.





## GUṆA (QUALITIES) AND KARMA (ACTION / EFFECT) OF VIṢA (POISON)

### LEARNING OBJECTIVES

- Viṣa has ten attributes.
- Ojah has ten attributes.
- Viṣas contains all attributes generally in tiksna state.
- Visa is sarva Doṣa prokopenam
- Visa first vitiates the sonita (Blood)
- Vegas among humans
  - 7 - Acarya suśruta
  - 8 - Acarya caraka
- There are seven kalas in the body.

### Characteristics of viṣa (poison)

As per Ācārya Caraka : 10

लघु रूक्षमाशु विशदं व्यवायि तीक्ष्णं विकासि सूक्ष्मं च ।  
उष्णमनिर्देश्यरसं दशगुणमुक्तं विषं तज्ज्ञैः ॥

CS.Ci. 23.24

- ◆ *laghu* (lightness)
- ◆ *rūkṣa* (non-unctuous)
- ◆ *āśu* (quick acting)
- ◆ *viśada* (non-sliminess)
- ◆ *vyavāyi* (all-pervading prior to digestion)
- ◆ *tīkṣṇa* (sharpness)
- ◆ *vikāsi* (slackening)
- ◆ *sūkṣma* (minute)
- ◆ *uṣṇa* (hot)
- ◆ *anirdeśya rasa* (indistinct taste)

These are the ten attributes of *viṣa* (poison) according to the expert *viṣatajjña* (toxicologists). The effects of the ten attributes of *viṣa* (poison) are:

रौक्ष्याद्वातमशैत्यात्पित्तं सौक्ष्म्यादसृक् प्रकोपयति ।  
कफमव्यक्तरसत्वादन्रसांश्चानुवर्तते शीघ्रम् ॥  
शीघ्रं व्यवायिभावादाशु व्याप्नोति केवलं देहम् ।

तीक्ष्णत्वान्मर्मघ्नं प्राणघ्नं तद्विकासित्वात् ॥  
दुरुपक्रमं लघुत्वाद्वैशद्यात् स्यादसक्तगतिदोषम् ।

CS.Ci. 23.25-27

By virtue of *rūkṣa* (non-unctuous) property, it aggravates *vāta*; its *uṣṇa* (hot) property aggravates of *pitta*; its *sūkṣma* (minute) property vitiates the *asṛk/rakta*; its *avyakta* or *anirdeśya rasa* (indistinct taste) aggravate *kapha*; it quickly permeates through the *annarasa* (chyle) because of its *śighra/āśu* (quick acting) attribute; because of its *vyavāyi* (all-pervading prior to digestion) attribute, it quickly spreads throughout the *deha* (body); its *tīkṣṇa* (sharpness) property is *marmaghna* (injuring the vital parts); *vikāsi* (slackening) property of *viṣa* (poison) is *prāṇaghna* (death causing); its *laghu* (lightness) property is responsible for *durupakrama* (difficulty in management); its *viśada* (non-sliminess) property, pervades all the *doṣas* and circulates with them persistently.

### Summary

1. <i>rūkṣa</i> (non-unctuous) property	aggravation of <i>vāta</i>
2. <i>uṣṇa</i> (hot) property	aggravation of <i>pitta</i>
3. <i>sūkṣma</i> (minute) property	vitiating of <i>asṛk rakta</i>
4. <i>avyakta</i> or <i>anirdeśya rasa</i> (indistinct taste)	aggravation of <i>kapha</i>
5. <i>śighra/āśu</i> (quick acting) property	quick permeation through the <i>annarasa</i> (chyle)
6. <i>vyavāyi</i> (all-pervading prior to digestion) property	quick spreading out throughout the <i>deha</i> (body)
7. <i>tīkṣṇa</i> (sharpness) property	<i>marmaghna</i> (injuring the vital parts)
8. <i>vikāsi</i> (slackening) property	<i>prāṇaghna</i> (death causing)



9. <i>laghu</i> (lightness) property	responsible for <i>durupakrama</i> (difficulty in management)
10. <i>viśada</i> (non-sliminess) property	pervading all the <i>doṣas</i> and circulating with them persistently

As per Ācārya Suśruta : 10

रूक्षमुष्णं तथा तीक्ष्णं सूक्ष्ममाशुव्यवायि च ॥

विकाशि विशदं चैव लघ्वपाकि च तत् स्मृतम् ।

SS.K. 2.19

Viṣa (poison) is :

- ♦ *rūkṣa* (rough)
- ♦ *uṣṇa* (hot)
- ♦ *tikṣṇa* (irritant or drastic)
- ♦ *sūkṣma* (minute)
- ♦ *āśu* (quick-acting)
- ♦ *vyavāyi* (all pervading prior to digestion)
- ♦ *vikāśi* (slackening), *viśada* (non-slimy)
- ♦ *laghu* (light)
- ♦ *apākī* (indigestible)

As per Ācārya Vāgbhata : 11

तीक्ष्णोष्णरूक्षविशदं व्यव्याशुकरं लघु ॥

विकाशि सूक्ष्ममव्यक्तरसं विषमपाकि च ।

AH.Ut. 35.7-8

- ♦ *Tikṣṇa* (irritant or drastic)
- ♦ *uṣṇa* (hot)

- ♦ *rūkṣa* (rough)
- ♦ *viśada* (non-slimy)
- ♦ *vyavāyi* (all pervading prior to digestion)
- ♦ *āśukara* (quick acting)
- ♦ *laghu* (lightness)
- ♦ *vikāśi* (slackening)
- ♦ *sūkṣma* (minute)
- ♦ *avyakta rasa* (indistinct taste)
- ♦ *viṣama-pāki* (indigestible)

Viṣa Guṇa  
शारंगधर. अथवायि  
(8) विकारी  
सुक्ष्म  
छोटी  
मदकारी

प्राणहर  
योगवाही  
अग्नेय

These are attributes of *viṣa* (poison). (See Table No. 3.1)

**Poisons with all the ten attributes are most fatal**

As per Ācārya Suśruta :

स्थावरं जंगमं यच्च कृत्रिमं चापि यद्विषम् ।

सद्यो व्यापादयेत्तत्तु ज्ञेयं दशगुणान्वितम् ॥ SS.K. 2.24

The *viṣa* (poison) of *sthāvara* (immobile) or *jaṅgama* (mobile) source or *kṛtrima* (artificial) with ten attributes are known to cause sudden fatality.

**Comparison of attributes of 'ojaḥ' and poison**

Introduction to *ojaḥ*

As per Ācārya Suśruta :

तत्र रसादीनां शुक्रान्तानां धातूनां यत् परं तेजस्तत्  
खल्वोजस्तदेव बलमित्युच्यते, स्वशास्त्रसिद्धान्तात् ॥

SS.Su. 15.20

Table 3.1 : Qualities/ attributes of *viṣa* (poison) - as per various Sages

S. No.	As per Ācārya Caraka	As per Ācārya Suśruta	As per Ācārya Vāgbhata
1.	<i>Laghu</i> (lightness)	<i>Laghu</i> (lightness)	<i>Laghu</i> (lightness)
2.	<i>Rūkṣa</i> (non-unctuous)	<i>Rūkṣa</i> (non-unctuous)	<i>Rūkṣa</i> (non-unctuous)
3.	<i>Āśu</i> (quick acting)	<i>Āśu</i> (quick acting)	<i>Āśukara</i> (quick acting)
4.	<i>Viśada</i> (non-sliminess)	<i>Viśada</i> (non-sliminess)	<i>Viśada</i> (non-sliminess)
5.	<i>Vyavāyi</i> (all-pervading prior to digestion)	<i>Vyavāyi</i> (all-pervading prior to digestion)	<i>Vyavāyi</i> (all-pervading prior to digestion)
6.	<i>Tikṣṇa</i> (sharpness)	<i>Tikṣṇa</i> (sharpness)	<i>Tikṣṇa</i> (sharpness)
7.	<i>Vikāśi</i> (slackening)	<i>Vikāśi</i> (slackening)	<i>Vikāśi</i> (slackening)
8.	<i>Sūkṣma</i> (minute)	<i>Sūkṣma</i> (minute)	<i>Sūkṣma</i> (minute)
9.	<i>Uṣṇa</i> (hot)	<i>Uṣṇa</i> (hot)	<i>Uṣṇa</i> (hot)
10.	<i>Anirdeśya rasa</i> (indistinct taste)	-	<i>Avyakta rasa</i> (indistinct taste)
11.	-	<i>Apākī</i> (indigestible)	<i>Viṣama-pāki</i> (indigestible)



*Ojaḥ* is the final and *param teja* (excellent essence) of *dhātus* beginning with *rasa* and ending with *śukra*, the same verily is called as 'bala'.

#### Nature and functions of *ojaḥ*

As per *Ācārya Suśruta* :

ओजः सोमात्मकं स्निग्धं शुक्लं शीतं स्थिरं सरम् ।

विविक्तं मृदु मृत्स्नं च प्राणायतनमुत्तमम् ॥

देहः सावयवस्तेन व्याप्तो भवति देहिनः ।

तदभावाच्च शीर्यन्ते शरीराणि शरीरिणाम् ॥

SS.Su. 15.22-23

- ◆ *Ojaḥ* is *somātmakam* (watery nature)
- ◆ *snigdham* (unctuous)
- ◆ *śuklam* (whitish)
- ◆ *śītam* (cool)
- ◆ *sthiram* (stable)
- ◆ *saram* (pervading)
- ◆ *viviktam* (pure)
- ◆ *mṛdu* (soft)
- ◆ *mṛtsnam* (delicate/ tender)
- ◆ *uttama prāṇāyatana* (excellent seat of life)

The entire *deha* (body) with *avayavas* (parts) is pervaded by *viṣa* and in its absence the whole *śarīra* (body) wanes off.

#### Attributes of *Ojaḥ*

As per *Ācārya Caraka* :

[ गुरु शीतं मृदु श्लक्ष्णं बहलं मधुरं स्थिरम् ।  
प्रसन्नं पिच्छिलं स्निग्धमोजो दशगुणं स्मृतम् ॥ ]

GSMS BMS PPS

CS.Ci. 24.31

- ◆ *guru* (heaviness)
- ◆ *śīta* (coolness)
- ◆ *mṛdu* (softness)
- ◆ *ślakṣṇa* (smoothness)
- ◆ *bahala* (dense)
- ◆ *madhura* (sweetness)
- ◆ *sthira* (stable)
- ◆ *prasanna* (clear)
- ◆ *picchila* (sliminess)
- ◆ *snigdha* (unctuousness)

These are ten attributes of *Ojaḥ*.

Table 3.2 : Comparison between qualities/ attributes of *viṣa* (poison), *madya* (alcohol) and *ojaḥ*

S. No.	Attributes of <i>viṣa</i> (poison)	Attributes of <i>madya</i> (alcohol)	Attributes of <i>ojaḥ</i>
1.	<i>laghu</i> (lightness)	<i>laghu</i> (lightness)	<i>guru</i> (heaviness)
2.	<i>rūkṣa</i> (non-unctuous)	<i>rūkṣa</i> (non-unctuous)	<i>snigdha</i> (unctuousness)
3.	<i>āśu</i> (quick acting)	<i>āśu</i> (quick acting)	<i>prasanna</i> (clear)
4.	<i>viśada</i> (non-sliminess)	<i>viśada</i> (non-sliminess)	<i>picchila</i> (sliminess)
5.	<i>vyavāyi</i> (all-pervading prior to digestion)	<i>vyavāyi</i> (all-pervading prior to digestion)	<i>sthira</i> (stable)
6.	<i>tikṣṇa</i> (sharpness)	<i>tikṣṇa</i> (sharpness)	<i>mṛdu</i> (softness)
7.	<i>vikāsi</i> (slackening)	<i>vikāsi</i> (slackening)	<i>ślakṣṇa</i> (smoothness)
8.	<i>sūkṣma</i> (minute)	<i>sūkṣma</i> (minute)	<i>bahala</i> (dense)
9.	<i>uṣṇa</i> (hot)	<i>uṣṇa</i> (hot)	<i>śīta</i> (coolness)
10.	<i>anirdeśya rasa</i> (indistinct taste)	<i>amla rasa</i> (sour taste)	<i>madhura</i> (sweetness)

#### Pharmacological action of qualities inherited in the *viṣa* (poison)

As per *Ācārya Suśruta* :

तद्रौक्ष्यात् कोपयेद्वायुमौष्ण्यात् पित्तं सशोणितम् ॥

मतिं च मोहयेत्तैक्षण्यान्मर्मबन्धान् छिनत्ति च ।

शरीरावयवान् सौक्ष्म्यात् प्रविशेद्विकरोति च ॥

आशुत्वादाशु तद्धन्ति व्यवायात् प्रकृतिं भजेत् ।

क्षपयेच्च विकाशित्वाद्दोषान्धातून्मर्लानपि ॥

वैशद्यादतिरिच्येत दुश्चिकित्स्यं च लाघवात् ।

दुर्हरं चाविपाकित्वात्तस्मात् क्लेशयते चिरम् ॥

SS.K. 2.20-23

Due to *rūkṣa* (non-unctuous) quality *viṣa* (poison) aggravates *vāyu*; due to *uṣṇa* (hot) quality, it aggravates *pitta* along with *śoṇita*; due to *tikṣṇa* (sharp) nature, it causes *moha* (stupor) of the *mati* (mind) and disjoins the *marma-bandhas* (supports of vital spots); due to *sūkṣma* (minute) quality, it enters and damages the *śarīra-avayavas* (organs of the body); by *āśu* (quick acting) nature, it kills instantaneously; by property of *vyavāyi* (all-pervading prior to digestion), it is absorbed and circulated all over the *śarīra*



(body); because of *vikāsi* (slackening) property, it harms *doṣas*, *dhātus* and *malas*; due to *viśada* (non-sliminess), it does not stick any place; due to *laghu* (lightness), it is *duścikitsya* (difficult to treat); and due to *apākī* (indigestible) nature, it is *durhara* (difficult to eliminate) and causes *cira-kleśa* (chronic trouble).

**Table 3.3 : Pharmacological action of qualities inherited in the viṣa (poison)**

Qualities inherited in the viṣa (poison)	Pharmacological action
• <i>rūkṣa</i> (non-unctuous) quality of <i>viṣa</i> (poison)	• aggravation of <i>vāyu</i>
• <i>uṣṇa</i> (hot) quality of <i>viṣa</i> (poison)	• aggravation of <i>pitta</i> along with <i>śoṇita</i>
• <i>tikṣṇa</i> (sharp) nature of <i>viṣa</i> (poison)	• <i>moha</i> (stupor) of the <i>mati</i> (mind) • disjointment of the <i>marma-bandhas</i> (supports of vital spots)
• <i>sūkṣma</i> (minute) quality of <i>viṣa</i> (poison)	• enters into and damages the <i>śarīra-avayavas</i> (organs of the body)
• <i>āśu</i> (quick acting) nature of <i>viṣa</i> (poison)	• kills instantaneously
• <i>vyavāyi</i> (all-pervading prior to digestion) nature of <i>viṣa</i> (poison)	• absorbed and circulated all over the <i>śarīra</i> (body)
• <i>vikāsi</i> (slackening) property of <i>viṣa</i> (poison)	• harms <i>doṣas</i> , <i>dhātus</i> and <i>malas</i>
• <i>viśada</i> (non-sliminess) nature of <i>viṣa</i> (poison)	• does not stick anyplace
• <i>laghu</i> (lightness) nature of <i>viṣa</i> (poison)	• <i>duścikitsya</i> (difficult to treat)
• <i>apākī</i> (indigestible) nature of <i>viṣa</i> (poison)	• <i>durhara</i> (difficult to eliminate) • causes <i>cira-kleśa</i> (chronic trouble)

All *viṣas* (poisons) contain attributes generally in *tikṣṇa* (drastic) state, they aggravate all *doṣas*, depart from their normal functions; *viṣas* (poisons) does not get digested and obstructs *prāṇas* (vital functions); *śvāsa* (respiration), where the *mārgas* (channels) being blocked by *kapha*, stop and as such the person, in spite of living, stays *visañjñā* (unconscious).

### Action of viṣas (poisons)

As per Ācārya Vṛddha Vāgbhaṭa -

विषं हि देहं सम्प्राप्य प्राग्दूषयति शोणितम् ॥

कफपित्तानिलांश्रानु समदोषं सहाशयान् ।

ततो हृदयमास्थाय देहोच्छेदाय कल्पते ॥ AS.Ut. 40.17

*Viṣa* (poison), after entering the body, firstly vitiates the *śoṇita* (blood) and followed by *vāta*, *pitta* and *kapha* along with their *āśayas* (abodes). Now, they enter the *hṛdaya* (heart) and kill the patient.

शरीरं दूषिते रक्ते सर्वं चिमिचिमायते ।

कोठः समण्डलः स्वेदो रोमहर्षश्च जायते ॥

क्षुद्रकीटा इवांगेषु विसर्पन्तीति मन्यते ।

विनामयति गात्राणि जृम्भते शिशिरप्रियः ॥

व्यापिनस्तस्य दुष्टस्य दुतस्य विषतेजसा ।

वातादयो वशं यान्ति बलिनोप्यबला इव ॥

AS.Ut. 40.18-19

When the *rakta* (blood) vitiates (because of poison), it causes *cimicima* (tingling sensation) all over the *śarīra* (body) along with *samaṇḍala koṭha* (circular urticarial rashes), *sveda* (sweating), *romaharṣa* (horri-pilation), sensation similar to *visarpaṇa* (crawling) of *kṣudra-kīṭa* (small insects) all over the *aṅga* (body), *vināma* (bending over) of the *gātra* (body), *jṛmbhā* (yawning), he is *śisira-priya* (likes cold articles); spreading aggressively in the *rakta* (blood) and other tissues *viṣa* (poison) by its *tejaḥ* (strength) over power the *vāta* etc. even though they are *balina* (strong).

विषं यद्दोषभूयिष्ठं तं दोषं प्राक् प्रपद्यते ।

आशये यस्य यस्यैव ततस्तदवतिष्ठते ।

तज्जान् विकारान् कुरुते यान् सर्वेषूपदेक्ष्यति ॥

AS.Ut. 40.21

### All doṣas-aggravating action of viṣa (poison)

As per Ācārya Suśruta :

विषे यस्माद्गुणाः सर्वे तीक्ष्णाः प्रायेण सन्ति हि ।

विषं सर्वमतो ज्ञेयं सर्वदोषप्रकोपणम् ॥

ते तु वृत्तिं प्रकुपिता जहति स्वां विषादिताः ।

नोपयाति विषं पाकमतः प्राणान् रुणद्धिः च ॥

श्लेष्मणाऽऽवृतमार्गत्वादुच्छ्वासोऽस्य निरुध्यते ।

विसंज्ञः सति जीवेऽपि तस्मात्तिष्ठति मानवः ॥

SS.K. 3.25-27



Viṣa (poison) first vitiates the *doṣa* by which it is *bhūyiṣṭha* (predominant), get localized in those *āśayas* (abodes/sites) which are specific to that *doṣa* and produce *vikāras* (diseases).

वाताशयस्थं कुरुते ततो श्लेष्मामयानपि ।  
पित्तश्लेष्माशयगतं तद्वत् पित्तकफोद्भवान् ॥

AS.Ut. 40.22

The *Viṣa* (poison) residing in the *vātāśaya* (abode of *vāta*) produces diseases of *vāta* as well as *śleṣma*; that present in *pittāśaya* (abode of *pitta*) causes diseases of *pitta* and *kapha*; and similarly the poison residing in *śleṣmāśaya* (abode of *kapha*) results in diseases of *śleṣma* along with that *pitta*.

तत्रापि चोत्तमांगस्थे सकोठं शूयते शिरः ।  
विशेषादक्षिकूटौष्ठनासास्यं हृष्टदन्तता ।  
तालुशोषो रुजा मूर्ध्नि वक्त्रे चिमिचिमायनम् ॥  
अर्थेषु चक्षुरादीनामप्रवृत्तिर्हनुग्रहः ।  
इत्यन्यत्रापि च विषं स्थितमंगेऽभिलक्षयेत् ॥

AS.Ut. 40.23-24

The *Viṣa* (poison) residing in the *uttamāṅga* (head region) causes *koṭha* (rashes) along with *śūna śiraḥ* (swelling in the head region) that is specific to *akṣikūṭa* (orbital region), *oṣṭha* (lips), *nāsā* (nose), *āśya* (oral cavity); the patient also suffers from *hr̥ṣṭadantatā* (teeth sensitivity), *tāluśoṣa* (dryness of palate), *mūrdhni-rujā* (headache), *cimicimāyana* (tingling sensation) of *vaktra* (body), *apravṛtti* (non-initiation) of *caḥṣu* (eyes) etc. the sensory organs move towards their *arthas* (subjects) and *hanugraha* (lock jaw); the presence of *viṣa* (poison) in other sites should be understood by the appearance of relevant symptoms.

व्याप्यैवं सकलं देहमुपरुध्य च वाहिनीः ।  
विषं विषमिव क्षिप्रं प्राणानस्य निरस्यति ॥

AS.Ut. 40.25

Thus *vyāpya* (spreading) in *sakala deha* (whole body) and causing *uparodha* (obstruction) in *vāhinī* (*srotas*), the *viṣa* (poison) takes away *prāṇa* (life) just like a *viṣa* (poison).

## Vega (velocity / impetuosity) of viṣas (poisons)

Definition of *vega* (velocity) of *viṣas* (poisons)

As per *Ācārya Suśruta* :

धात्वन्तरेषु याः सप्त कलाः संपरिकीर्तिताः ।  
तास्वेकैकामतिक्रम्य वेगं वेगं प्रकुरुते विषम् ॥

SS.K. 4.40

*Viṣas* (poisons) crossing over each of the seven *kalās* (limiting membranes) successively situated in the midway region between one and the other *dhātu* produces different phases of effect; this is termed as '*vega* (velocity / impetuosity) of *viṣas* (poisons)'.

*Vegāntara* (Interval between phases of poison)

As per *Ācārya Suśruta* :

येनान्तरेण तु कलां कालकल्पं भिनत्ति हि ।  
समीरणेनोह्यमानं तत्तु वेगान्तरं स्मृतम् ॥

SS.K. 4.41

The interval appearing while poison driven by *vāyu* crosses one *kalā* to the other is known as *vegāntara* (interval between phases).

Table 3.4 : *Viṣa-vegas* among humans and other living beings

Living beings	As per <i>Ācārya Caraka</i>	As per <i>Ācārya Suśruta</i>
Human beings	8	7
Animals	4	4
Birds	3	3

Signs and symptoms of *viṣavegas*

(stages of poisoning) - among human beings

As per *Ācārya Caraka* :

तृणमोहदन्तहर्षप्रसेकवमथुक्लमा भवन्त्यद्ये ।  
वेगे रसप्रदोषादसृक्प्रदोषाद्वितीये तु ॥  
वैवर्ण्यभ्रमवेपथुमूर्च्छाजृम्भांगचिमिचिमार्तमकाः ।  
दुष्टपिश्रितात्तृतीये मण्डलकण्डूश्चयथुकोठाः ॥  
वातादिजाश्रुतुर्थे दाहच्छर्द्वागशूलमूर्च्छाद्याः ।  
नीलादीनां तमसश्च दर्शनं पञ्चमे वेगे ॥  
षष्ठे हिक्का, भंगः स्कन्धस्य तु सप्तमेऽष्टमे मरणम् ।

CS.Ci. 23.18-21

In human beings, the effects of *viṣas* (poisons) are revealed in eight different stages as follows -



- In the *prathama vega* (first stage), because of the vitiation of *rasa* (plasma), the patient suffers from *tṛṇ* (morbid thirst), *moha* (unconsciousness), *dantaharṣa* (tingling sensation in teeth), *praseka* (salivation), *vamathu* (vomiting) and *klama* (fatigue).
  - In the *dvitīya vega* (second stage), because of the vitiation of *asṛk/śonita* (blood), the patient suffers from *vaivarṇya* (discolouration of skin), *bhrama* (giddiness), *vepathu* (trembling), *mūrcchā* (fainting), *jṛmbhā* (yawning), *aṅga cimicima* (tingling sensation in the limbs) and *tamaka* (dyspnoea).
  - In the *tṛtīya vega* (third stage), because of the vitiation of *piśita* or *māmsa* (muscle tissue), the patient suffers from *maṇḍala* (circular eruptions), *kaṇḍū* (pruritus), *śvayathu* (oedema) and *koṭha* (urticaria).
  - In the *caturtha vega* (fourth stage), because of the vitiation of *vāta* etc., the patient suffers from *dāha* (burning sensation), *chardi* (vomiting), *aṅgaśūla* (pain in the limbs), *mūrcchā* (fainting) etc.
  - In the *pañcama vega* (fifth stage), the patient suffers from *nīla darśana* (bluish-vision) or *tamasah darśana* (dark-vision) etc.
  - In the *ṣaṣṭha vega* (sixth stage), the patient suffers from *hikkā* (hiccough).
  - In the *saptama vega* (seventh stage), the patient suffers from *skandha bhaṅga* (dislocation of shoulder girdle).
  - In the *aṣṭama vega* (eighth stage), the patient surrenders to death.
- The above cited eight *viṣavegas* (stages of poisoning) are revealed in human beings.

 Table 3.5 : Symptoms of *viṣavegas* (stages of poisoning) among human beings (as per Sage Caraka)

<i>Viṣavegas</i> (stages of poisoning)	<i>Ācārya Dalhana's</i> quote	As per <i>Ācārya Caraka</i>
<i>Prathama vega</i> (first stage)	रसरक्तयोरन्तरस्थांकलामतिक्रम्य रक्ते प्रथमवेगः।	<ul style="list-style-type: none"> <li>• <i>tṛṇ</i> (morbid thirst)</li> <li>• <i>moha</i> (unconsciousness)</li> <li>• <i>dantaharṣa</i> (tingling sensation in teeth)</li> <li>• <i>praseka</i> (salivation)</li> <li>• <i>vamathu</i> (vomiting)</li> <li>• <i>klama</i> (fatigue)</li> </ul>
<i>Dvitiya vega</i> (second stage)	रक्तमांसयोरन्तरस्थांकलामतिक्रम्य द्वितीयः।	<ul style="list-style-type: none"> <li>• <i>vaivarṇya</i> (discolouration of skin)</li> <li>• <i>bhrama</i> (giddiness)</li> <li>• <i>vepathu</i> (trembling)</li> <li>• <i>mūrcchā</i> (fainting)</li> <li>• <i>jṛmbhā</i> (yawning)</li> <li>• <i>aṅga cimicima</i> (tingling sensation in the limbs)</li> <li>• <i>tamaka</i> (dyspnoea)</li> </ul>
<i>Tṛtīya vega</i> (third stage)	मांसमेदसोरन्तरस्थांकलामतिक्रम्य तृतीयः।	<ul style="list-style-type: none"> <li>• <i>maṇḍala</i> (circular eruptions)</li> <li>• <i>kaṇḍū</i> (pruritus)</li> <li>• <i>śvayathu</i> (oedema)</li> <li>• <i>koṭha</i> (urticaria)</li> </ul>
<i>Caturtha vega</i> (fourth stage)	मेदःकफयोरन्तरस्थांकलामतिक्रम्य चतुर्थः।	<ul style="list-style-type: none"> <li>• <i>dāha</i> (burning sensation)</li> <li>• <i>chardi</i> (vomiting)</li> <li>• <i>aṅgaśūla</i> (pain in the limbs)</li> <li>• <i>mūrcchā</i> (fainting) etc.</li> </ul>
<i>Pañcama vega</i> (fifth stage)	कफपुरीषयोरन्तरस्थांकलामतिक्रम्य पञ्चमः।	<ul style="list-style-type: none"> <li>• <i>nīla darśana</i> (bluish-vision) or</li> <li>• <i>tamasah darśana</i> (dark-vision) etc.</li> </ul>
<i>Ṣaṣṭha vega</i> (sixth stage)	पुरीषपित्तयोरन्तरस्थांकलामतिक्रम्य षष्ठः।	<ul style="list-style-type: none"> <li>• <i>hikkā</i> (hiccough)</li> </ul>
<i>Saptama vega</i> (seventh stage)	पित्तशुक्रयोरन्तरस्थांकलामतिक्रम्य सप्तम इति।	<ul style="list-style-type: none"> <li>• <i>skandha bhaṅga</i> (dislocation of shoulder girdle)</li> </ul>
<i>Aṣṭama vega</i> (eighth stage)		<ul style="list-style-type: none"> <li>• <i>marana</i> (death)</li> </ul>



Explaining the differences in number of *viṣavegas* (stages of poisoning) among humans, *Ācārya Cakrapāṇi* says -

सुश्रुते एकैककलातिक्रमेण सप्तवेगा उदीरिताः; इह कलालङ्घनेनैव सप्तवेगाः, अष्टमे तु सप्तकलालङ्घनोत्तरकालं मारको वेगो दष्टस्य दंशदेशगमनाय पीतविषस्य हृदयगमनाय भवतीति सुश्रुतेन समविरोधः।

Ck. on CS.Ci. 23.18-23

*Ācārya Suśruta*, in the fourth chapter of *Kalpasthāna* (ref. SS.K. 4.26), has enumerated seven *viṣa-vegas* (stages of poisoning). There are seven *kalās* (membranes lying between successive *dhātus*) in the body, and these *vegas* (stages) appear when the *viṣa* (poison) crosses these *kalās* (membranes lying between successive *dhātus*). After the *saptama vega* (seventh stage), the *viṣa* (poison) spread by bite return back to the *daṁśadeśa* (site of bite), and the *viṣa* (poison) consumed orally returns to the *hṛdaya* (heart) to cause death of the patient in the *aṣṭama vega* (eighth stage). Thus, there exists no contradiction between the statements of *Ācārya Caraka* and *Ācārya Suśruta*.

#### Signs and symptoms of *viṣavegas* (stages of poisoning) - among animals

As per *Ācārya Caraka* :

चतुष्पदां स्याच्चतुर्विधः। CS.Ci. 23.21

सीदत्याद्ये भ्रमति च चतुष्पदो वेपते ततः शून्यः।

मन्दाहारो म्रियते श्वासेन हि चतुर्थवेगे तु॥ CS.Ci. 23.22

The four *viṣavegas* (stages of poisoning) among animals are as follows:

- In the *prathama vega* (first stage), the animal suffers from depression and *bhrama* (giddiness);

- In the *dviṣṭya vega* (second stage), the animal suffers from *vepana* (trembling);
- In the *ṭṭīya vega* (third stage), the animal has sense of *śūnya* (emptiness) and it resorts to *manda āhāra* (minimal diet);
- In the *caturtha vega* (fourth stage), the animal succumbs to *śvāsa* (dyspnoea/ respiratory failure).

#### Signs and symptoms of *viṣavegas* (stages of poisoning) - among birds

As per *Ācārya Caraka* :

पक्षिणां त्रिविधः॥ CS.Ci. 23.21

ध्यायति विहगः प्रथमे वेगे प्रभ्राम्यति द्वितीये तु।

सस्तांगश्च तृतीये विषवेगे याति पञ्चत्वम्॥ CS.Ci. 23.23

The *viṣavegas* (stages of poisoning) among birds are as follows:

- In the *prathama vega* (first stage), the bird suffers from depression;
- In the *dviṣṭya vega* (second stage), the bird gets *bhrama* (giddiness); and
- In the *ṭṭīya vega* (third stage), the bird develops *srastāṅga* (sluggishness of the limbs) resulting in death. (See Table No : 3.6)

*Ācārya Cakrapāṇi* -

Explaining the reason for fewer numbers of *viṣavegas* (stages of poisoning) among animals and birds.

चतुष्पदादीनामल्पवेगत्वं सत्त्वालपत्वात्।

Ck. on CS.Ci. 18-23

i.e. animals and birds are of *alpa sattva* (low vitality); hence *viṣavegas* (stages of poisoning) are smaller in number.

**Table 3.6 : Signs and symptoms of *viṣavegas* (stages of poisoning) among other living beings**

<i>Viṣavegas</i> (stages of poisoning)	Among animals	Among birds
1. <i>Prathama vega</i> (first stage)	depression and <i>bhrama</i> (giddiness)	depression
2. <i>Dviṣṭya vega</i> (second stage)	<i>vepana</i> (trembling)	<i>bhrama</i> (giddiness)
3. <i>ṭṭīya vega</i> (third stage)	sense of <i>śūnya</i> (emptiness) and animals resorts to <i>mandaāhāra</i> (minimal diet)	<i>srastāṅga</i> (sluggishness of the limbs) resulting in death
4. <i>Caturtha vega</i> (fourth stage)	animal succumbing to <i>śvāsa</i> (dyspnoea/ respiratory failure)	





## AVACĀRAṆA ADMINISTRATION OF VIṢA (POISON)

### LEARNING OBJECTIVES

- Visadata should be identified by the atypical expressions of vak, cesta and mukha.
- Means of administration of poison - 20 (Susruta)
- Liver and kidney are the main organs for accumulation of poison.
- Severity of visa depend upon dosa, sthana and prakrti
- Visa is most potent during varsā ritu.
- Visa Sankata - Combination of visa prakrti visa kala, anna, dosa, dusya.

### Characteristic behaviour of viṣadātā (person administering poison)

It is a crime of heinous nature to poison someone with purpose of harming (physically or mentally) or for homicidal reasons. It might be done in heat of a moment or under the influence of some individual; but this act fills man with guilt and sense of crime; giving rise to scepticism with constant anxiety of being caught and punished by the law-makers. His attitude change with immediate effect. This change in the behaviour of guilty is beautifully noted by Sage *Suśruta*; he quotes :

इंगितज्ञो मनुष्याणां वाक्चेष्टामुखवैकृतैः ॥  
विद्याद्विषस्य दातारमेभिलिंगैश्च बुद्धिमान् ।  
न ददात्युत्तरं पृष्टो विवक्षन् मोहमेति च ॥  
अपार्थं बहु संकीर्णं भाषते चापि मूढवत् ।  
स्फोटयत्यंगुलीभूमिमकस्माद्विलिखेद्धसेत् ॥  
वेपथुर्जायते तस्य त्रस्तश्चान्योऽन्यमीक्षते ।  
क्षामो विवर्णवक्त्रश्च नखैः किञ्चिच्छिनत्यपि ॥  
आलभेतासकृद्दीनः करेण च शिरोरुहान् ।  
निर्यियासुरपद्धारैर्वीक्षते च पुनः पुनः ॥  
वर्तते विपरीतं तु विषदाता विचेतनः । SS.K. 1.18-23

One proficient in identifying the actions should know the *viṣadātā* (person administering poison) by the atypical expressions of *vāk* (speech), *ceṣṭā* (activity) and *mukha* (face) & particularly by the following activities : the *viṣadātā* (person administering poison) does not reply when quizzed, gets moha (confused) as what to say, speaks apārtha (garbage), bahu (excessively) and saṅkīrṇa (mixed up) like a mūḍha (jester), cracks aṅgulī (fingers), scratches bhūmi (earth) abruptly and giggles, suffers from vepathu (trembling) and out of fear gazes one another, is kṣāma (exhausted), with vivarṇa vaktra (pale expression), cuts something with nakha (nail), touches śiroruha (hairs of the head) with kara (hands) frequently and dina (poor) expression, intermittently looks to apa-dvāras (back doors) with the idea of fleeing and behaves strangely deprived of vicetana (sense).

### Important Note

At times the psychiatric those, patients afflicted with anxiety neurosis and such others exhibit similar signs. To avoid prosecution of such individuals, considering them culprits of poisoning, Sage *Suśruta* has cautioned us. He quotes:

केचिद्भयात् पार्थिवस्य त्वरिता वा तदाज्ञया ॥  
असतामपि सन्तोऽपि चेष्टां कुर्वन्ति मानवाः ।  
तस्मात् परीक्षणं कार्यं भृत्यानामदृतैर्नृपैः ॥

SS.K. 1.23-24

Even some *pārthivas* (patricians), out of fear of the *nṛpa* (king) or minding his orders in eagerness, act like *asat* (wicked) persons. Hence the *bhṛtya* (fellows of the staff) should be examined gallantly.



Ācārya Caraka's description of viṣadātā:

अत्यर्थशक्तिः स्यादबहुवाग्यवाऽल्पवाग्विगतलक्ष्मीः ।

प्राप्तः प्रकृतिविकारं विषप्रदाता नरो ज्ञेयः ॥

CS.Ci. 23.107

A person who behaves in *atyartha śānkita* (awfully mistrustful) manner, who is *bahuvāk* (chatty) or who is *alpavāk* (frail in speaking), who has *vigatalakṣmī* (lost gleam of his face) and who exhibits *vikāra* (changes) in his *prakṛti* (characteristic features) is a *viṣapradātā* (poison-giver).

Ācārya Vagbhata's description of viṣada (*viṣadātā*):

विषदः श्यावशुष्कास्यो विलक्षो वीक्षते दिशः ॥

स्वेदवेषशुमांस्त्रस्तो भीतः स्खलति जुम्भते ।

AH.Su. 7.12-13

*Viṣada* (i.e. *viṣadātā* — one who adds poison) will have *śyāva* (dark) face and *śuṣka āsya* (dry mouth); out of *vilakṣa* (shyness), he will be

looking unconnectedly. He will be *sveda yukta* (sweating profusely), *vopathu yukta* (trembling), *trasta* (shivering), *bhīta* (fearful), *skhalita* (imbalanced gait) and *jṛmbhita* (profusely yawning).

### Means of administration of poison

As per Ācārya Suśruta :

अन्ने पाने दन्तकाष्ठे तथाऽभ्यंगेऽवलेखने ।

उत्सादने कषाये च परिषेकेऽनुलेपने ॥

स्त्रक्षु वस्त्रेषु शय्यासु कवचाभरणेषु च ।

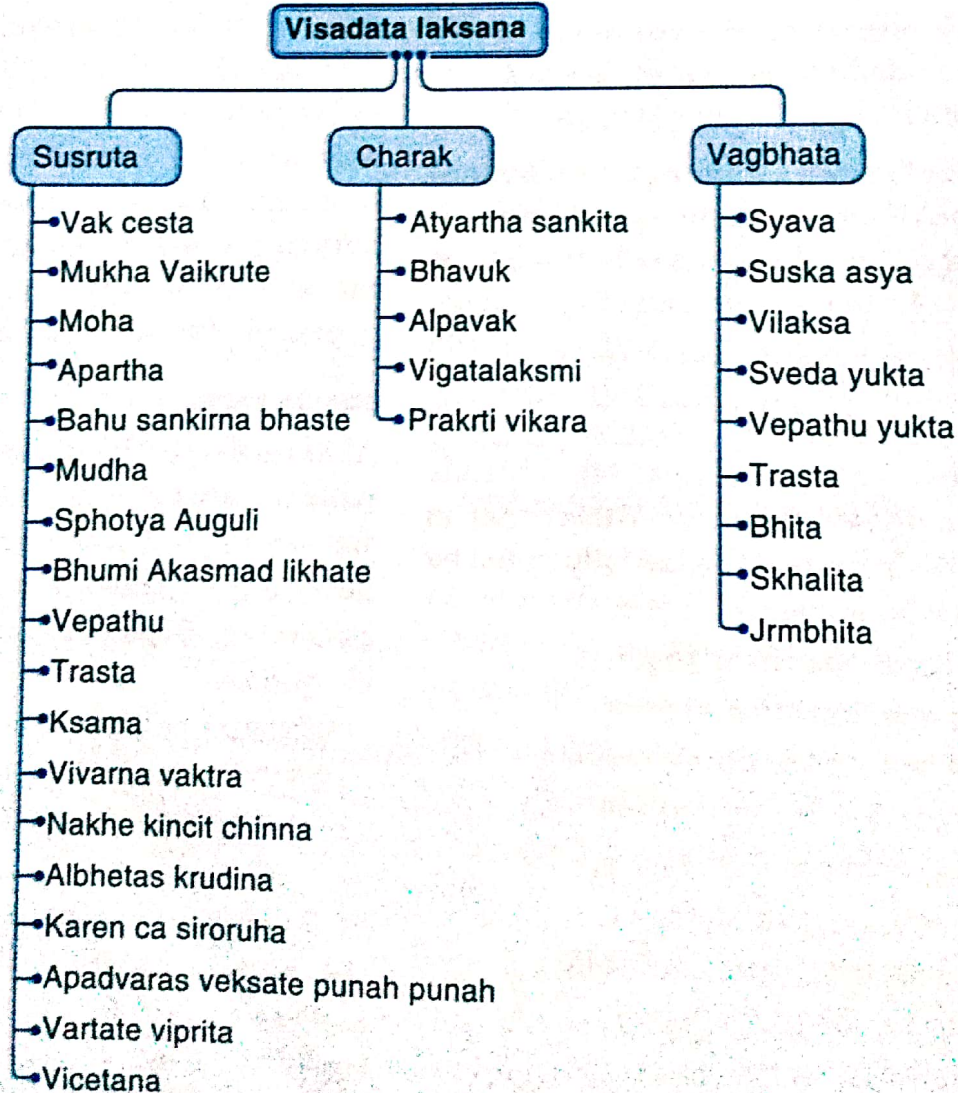
पादुकापादपीठेषु पृष्ठेषु गजवाजिनाम् ॥

विषजुष्टेषु चान्येषु नस्यधूमाञ्जनादिषु ।

लक्षणानि प्रवक्ष्यामि चिकित्सामप्यनन्तरम् ॥

SS.K. 1.25-27

*Anna* (food articles), *pāna* (drinks), *danta-kāṣṭha* (tooth-brush), *abhyaṅga* (massage), *avalekhana* (comb), *utsādana* (anointment), *kaṣāya* (decoctions), *pariṣeka* (baths), *anulepana* (after pastes), *strakṣu* (garlands), *vastra* (clothings), *śayyā*





(beds), *kavaca* (armour/coats), *ābharāṇa* (ornaments), *pādukā* (footwears), *pādapīṭha* (foot rests), *prsthā* (back) of *gaja* (elephants) and *āvī* (horses), *nasya* (errhines), *dhūma* (medicated smokings), *añjana* (collyrium) etc. can be the means of administering poison.

#### Routes of administration of poison

- Enteral route
- Parenteral route (this includes the bite of venomous creatures)
  - ◆ Intra-venous
  - ◆ Intra-muscular
  - ◆ Intra-arterial
  - ◆ Intra-peritoneal
  - ◆ Sub-cutaneous etc.
  - ◆ Intra-dermal
  - ◆ Intra-theal.
- Inhalation
- Through natural orifices
  - ◆ Oral
  - ◆ Rectal
- Sublingual route
- External application

#### *Viṣakanyā* (poisonous girl)

Sage *Vṛddha Vāgbhaṭa*, while explaining *viṣakanyā* (poisonous girl), explains:

आजन्मविषसंयोगात् कन्या विषमयीकृता ॥  
 स्पृशोच्छ्वासादिभिर्हन्ति तस्यास्त्वेतत्परीक्षणम् ।  
 तद्धस्तकेशसंस्पर्शान्प्रायते पुष्पपर्ल्लवैः ॥  
 शय्यायां मत्कुणैर्वस्त्रे यूकाभिः स्नानवारिणि ।  
 जन्तुभिर्प्रियते ज्ञात्वा तामेवं दूरतस्त्यजेत् ॥

AS.Su. 8.54-56

Prof. Priya Vrat Sharma says : what was the actual character of *vishkanya* is not known, yet ! It seems to be that, in ancient times, young & beautiful girls were used to be poisoned by applying various *visa* in the form of pastes on her breast and inguinal regions. Which would prove fatal to the person coming in physical contact with them.

By *ājanma viṣa-samyoga* (poisoning in mild dose) *kanyā* (girl) becomes *viṣamayī* (poisonous/ toxic); her *sparsā* (touch), *ucchvāsa* (breath) etc. are

weaponed to kill. Such a poisoned girl, at first, should be examined. The *puṣpa pallava* (flower buds) in her *hasta* (hands) and *keśa* (hairs) fade away by her *saṁsparśa* (touch); *matkuṇa* (bedbugs) in *śayyā* (bed), *yūkā* (lice) in the *vastra* (clothings) and *jantu* (insects) in the *snānavāri* (bathing water) used by her will be found dead. By noting this, such *kanyā* (girl) should be avoided.

#### Accumulation of poison in the body

- Poisons can get absorbed in various systems of the body and remain accumulated there for prolonged duration. Some are accumulated in their original form while others undergo chemical or biochemical changes before such accumulation.
- Liver and kidneys are the main organs for accumulation of poisons. Some poisons are also accumulated in the skin, fat etc.

#### Channels of elimination of poison

When poison is administered in the body, the body itself tries to eliminate it through the following routes :

- through vomiting
- through purgation
- through urination
- through salivation
- through sweat etc.

Some poisons are being eliminated in their original form while some undergo chemical or biochemical changes before getting eliminated.

#### Actions of poison

The action of poison is being categorized into following four types :

- Local action
- Remote action
- Local and remote action
- General action

#### Local action of poison

On contact with the skin surface poison presents with certain local symptoms; these include

- ◆ oedema
- ◆ burning sensation
- ◆ ulceration
- ◆ discoloration



E.g. smoke from burning marking nut causes oedema at the site of contact, sulphuric acid burns the site, atropine causes dilatation of the pupils etc.

#### Remote action of poison

Ingested poison presents with remote action within in the body; this is of two kinds :

- Specific and
- Non-specific.
  - ◆ Specific remote action : Certain poisons have an effect on specific organs or systems of the body. E.g. *ativiṣā* (aconitum heterophyllum), aconite and digitalis affect the heart; opium and its alkaloids affect the nervous system; strychnine affects the spinal cord etc.
  - ◆ Non-specific remote action : Certain poisons affect remote organs of the body; e.g. corrosive poison. These poisons result in shock etc.

#### Local and remote action of poison

Certain poisons have both local and remote actions. E.g. carbolic acid, oxalic acid, phosphorus etc.

#### General action of poison

Certain poisons, after being absorbed within the body tissues, simultaneously affect numerous systems of the body. E.g. mercury, arsenic, DDT etc.

#### Factors modifying the action of poisons

Many external and internal factors modify the action of poison; these are :

- Dose of poison
- Form of poison
- Method of administration
- Physical condition of the patient
- Mental condition
- Physical environment.

#### Quantity of poisons

Quantity or doses of poisons also play a vital role in manifestation of toxicity. Mild poisons,

when ingested in large quantity, cause no significant damage to the body; whereas, strong poisons, even in minute dosage, can be fatal.

Certain poisons when taken in prescribed dosage act like medicines; the same when taken in minute dose have no major effect and may kill when taken in large dose.

There are certain factors that can alter the above said rules; these are :

- Habit/addiction
- Allergy
- Synergism
- Differently affecting doses and
- Cumulative poison.

◆ **Habit / addiction** : Some individuals, due to chronic use of certain poisonous ingredients, become habituated or addicted for the same. E.g. tobacco, alcohol, opium, cannabis etc. The toxic dosage of these ingredients in habituated/addicted individuals is more than those not habituated/addicted.

◆ **Allergy** : Allergy is a hyper-sensitivity reaction of individual towards specific substances; e.g. Penicillin is an excellent drug for numerous infections but it is intolerable to many individuals and causes life-threatening reaction when administered.

◆ **Synergism** : Combination of two or more non-poisonous substances produce toxic reaction in certain individuals; this is known as 'Synergism'. E.g. mixing of ghee and honey in equal quantity. At times, combination of two or more poisonous substances in non-toxic dosage causes toxicity; e.g. copper and dhatura or cannabis.

◆ **Differently affecting doses** : Blue vitriol being emetic in nature, when taken in large quantity causes vomiting; this reduces its toxic effect. Arsenic in small quantity causes gastro-intestinal excitation; but in large quantity causes severe toxicity and shock, resultant death.



- ◆ **Cumulative poison:** Toxins in smaller quantities, when ingested are excreted through the urine, faeces, sweat etc. But aconite, mercury, tin etc. accumulate in the body and get deposited in the organs; these toxins present with delayed toxicity.

#### State or form of poison

Three states or forms of poison are :

- Physical state,
- Chemical combination and
- Mechanical combination.
- ◆ **Physical state :** Poisons in gaseous state are more fatal than those in liquid state which are more fatal than solids. At times, poisons in solid state (tablets, pills) are excreted through the rectal route in intact form. e.g. strychnos
- ◆ **Chemical combination :** Chemical combination of two or more substances, at times, changes the dilution of them. Poisons in diluted form are more toxic than non-diluted form. Chemical combination of substances may be more or less effective; example of more effective are : copper arsenite + lead carbonate; example of less effective acids + alkalis.
- ◆ **Mechanical combination :** If poison given with mechanical substances their toxicity is significantly altered. When alkaloids are given with animal charcoal, they become ineffective. Absorption of poison is slow on full stomach and when the diet is rich in fatty/oily substances.

#### Methods of administration of poison

Following are the routes or methods of administering poison in the body of an individual :

- Inhalation
- Intra-venous injection
- Intra-muscular injection
- Sub-cutaneous injection

- Oral (ingestion) route
- Contact through skin and cuts
- Other anatomical routes (e.g. rectum, vagina, urethra etc.)

#### Physical conditions influencing effect of poison

Physical condition plays a vital role in ascertaining the effect of poison on the body. For this following factors should be considered :

- Age
- Health
- Prakṛti
- Mental condition
- Sleep and intoxication
- Place and time.

- ◆ **Age :** Medicinal dose of poisonous drugs for adult will not be tolerated by paediatric patients. The best option for these paediatric patients is to avoid prescribing such drugs with poisonous contents. The same rule applies for geriatric patients because they have poor strength etc.
- ◆ **Health :** Effect of poison is reduced in healthy and fit individual whereas it is fatal for diseased patients. Similarly, certain medical conditions also play a role in ascertaining the effect of poison on the individual. Patients with poor hepatic and renal functions will be more affected by poison than the healthy ones. Cardiotoxic poisons will have devastating effect on cardiac patients. On the other hand, some medical conditions downsize the effect of poison on the body. Patients of mania or delirium tremors can tolerate hypnotics and opiates in much higher dose than other patients.
- ◆ **Prakṛti (constitution)-Āyurveda** identifies three major kinds of prakṛtis (constitutions): (1) *vātaja*, (2) *pittaja* and (3) *kaphaja*. Both, *viṣa* (poison) and *pitta*,



are predominant in *agni mahābhūta*; for this reason, *viṣa* (poison) has more impact on *pittaja prakṛti* individuals. In *pittaja prakṛti* the *viṣa* (poison) is most virulent, followed by *vātajaja prakṛti* and then *kaphajaja prakṛti* individuals. *Ācārya Caraka* says :

दोषस्थानप्रकृतीः प्राप्यान्यतमं ह्यदीरयति ॥ CS.Ci. 23.27

Depending upon the *doṣa*, *sthāna* (location) and *prakṛti* (constitution of the patient), *viṣa* produces several complications.

#### Effect of *viṣa* (poison) on person having *vāta prakṛti*

As per *Ācārya Caraka* :

स्याद्वातिकस्य वातस्थाने कफपित्तलिंगमीषत्तु ।

तृणमोहारतिमूर्च्छागलग्रहच्छर्दिफेनादि ॥ CS.Ci. 23.28

If the *viṣa* (poison) get lodged in the habitat of *vāta* (i.e. colon) in a person having a *vātika prakṛti*, then the patient suffers from *trṣṇā* (morbid thirst), *moha* (stupor), *arati* (restlessness), *mūrcchā* (fainting), *galagraha* (obstruction in throat), *chardi* (vomiting), *phena* (frothing from mouth) etc.

#### Effect of *viṣa* (poison) on person having *pitta prakṛti*

As per *Ācārya Caraka* :

पित्ताशयस्थितं पित्तिकस्य कफवातयोर्विषं तद्वत् ।

तृदकासज्वरवमथुक्लमदाहतमोतिसारादि ॥ CS.Ci. 23.29

If the *viṣa* (poison) get lodged in the *pittāśaya* (habitat of *pitta*), in a person having a *paittika prakṛti*, there will be less manifestation of features of *kapha* and *vāta*; the patient suffers from *trṣṇā* (morbid thirst), *kāsa* (cough), *jvara* (fever), *vamathu* (vomiting), *klama* (fatigue), *dāha* (burning sensation), *tamaḥ* (black outs), *atisāra* (diarrhoea) etc.

#### Effect of *viṣa* (poison) on person having *kapha prakṛti*

As per *Ācārya Caraka* :

कफदेशगं कफस्य च दर्शयेद्वातपित्तयोश्चेष्टत् ।

लिंगं श्वासगलग्रहकण्डूलालावमथ्वादि ॥ CS.Ci. 23.30

If the *viṣa* (poison) gets lodged in the *kaphadeśa* (habitat of *kapha*), in a person having a *kapha prakṛti*, then the patient suffers from *śvāsa* (dyspnoea), *galagraha* (obstruction to the throat),

*kaṇḍū* (itching), *lālā* (excessive salivation), *vamathu* (vomiting) etc.; there will be minimal manifestation of signs and symptoms of *vāta* and *pitta*.

Table 4.1 : Features of *viṣa* (poison) as per *doṣa prakṛti*

Vāta prakṛti	Pitta prakṛti	Kapha prakṛti
<ul style="list-style-type: none"> <li>• <i>trṣṇā</i> (morbid thirst)</li> <li>• <i>moha</i> (stupor)</li> <li>• <i>arati</i> (restlessness)</li> <li>• <i>mūrcchā</i> (fainting)</li> <li>• <i>galagraha</i> (obstruction in throat)</li> <li>• <i>chardi</i> (vomiting)</li> <li>• <i>phena</i> (frothing from mouth) etc.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>trṣṇā</i> (morbid thirst)</li> <li>• <i>kāsa</i> (cough)</li> <li>• <i>jvara</i> (fever)</li> <li>• <i>vamathu</i> (vomiting)</li> <li>• <i>klama</i> (fatigue)</li> <li>• <i>dāha</i> (burning sensation)</li> <li>• <i>tamaḥ</i> (black outs)</li> <li>• <i>atisāra</i> (diarrhoea) etc.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>śvāsa</i> (dyspnoea)</li> <li>• <i>galagraha</i> (obstruction to the throat)</li> <li>• <i>kaṇḍū</i> (itching)</li> <li>• <i>lālā</i> (excessive salivation)</li> <li>• <i>vamathu</i> (vomiting) etc.</li> </ul>

- **Mental condition** : Psychological factors such as fear, concern, doubt, anxiety etc. can enhance the action of poison on the body. *Śānkā-viṣa* and *sarpāṅgābhīhata* are the excellent examples for explaining the role of such mental condition on toxicity of toxins/ poisons. On the other hand, individuals with strong mental faculty are less harmed by poisons. Thus, mental condition plays a crucial role in manifestation and toxicity of poisons.
- **Sleep and intoxication** : Sleep and intoxication slow down the metabolic processes of the body; therefore spreading of poison is also slow among these individuals.
- **Place and time** : We shall come across, in the chapter on snake-bite, that certain snakes of certain habitat are more poisonous than others. Likewise, snake-bite on certain part of body is comparatively more fatal than other part and vice-versa. This rule also applies to other toxic creatures and plants.
- With respect to *kāla* (season), *viṣa* is most potent during *varsā ṛtu* (rainy season);



Ācārya Caraka explains the reason for the same:

तद्वर्षास्वम्बुयोनित्वात् संक्लेदं गुडवद् गतम् ॥  
सर्पत्यम्बुधरापाये तदगस्त्यो हिनस्ति च ।  
प्रयाति मन्दवीर्यत्वं विषं तस्माद् घनात्यये ॥

CS.Ci. 23.7-8

- Viṣa (poison) originates from *jala* (water) and becomes sticky like *guḍa* (jaggery) when it comes in contact with water, and spreads during the *varṣā rtu* (rainy season). However, the star *Agastya* (Canopus) at the end of rainy season, counteracts the effects of such poison. Therefore, the effects of poison become *manda-vīrya* (milder in potency) after the rainfall.

### Viṣasaṅkāṭa (emergency in poisoning)

As per Ācārya Vṛddha Vāgbhaṭa :

[विषप्रकृतिकालान्नदोषदूष्यादिसंगमे ।

विषसंकटमुद्दिष्टं शतस्यैकोत्र जीवति ॥ ] AS.Ut. 40.160

Combination of *viṣa-prakṛti* (*pittaprakṛti*), *viṣa-kāla* {*varṣā kāla* (rainy season) & *grīṣma kāla* (summer season)}, *anna* {*kaṭu* (bitter) & *tikta* (pungent) *rasas*}, *doṣa* (*pitta*), *dūṣya* (*rakta*) etc. results in the event called 'viṣasaṅkāṭa (emergency in poisoning)'; one out of hundred reaching this stage survives.

### Viṣapīta (features of one who has consumed poison)

As per Ācārya Suśruta :

सवातं गृहधूमाभं पुरीषं योऽतिसार्यते ॥

आध्मातोऽत्यर्थमुष्णास्रो विवर्णः सादपीडितः ।

उद्धमत्यथ फेनं च विषपीतं तमादिशेत् ॥

न चास्य हृदयं वह्निर्विषजुष्टं दहत्यपि ।

तद्धि स्थानं चेतनायाः स्वभावाद्दूष्याप्य तिष्ठति ॥

SS.K. 3.35-37

### Features of Visapita

- Atisarana of purisa like grahadhumabha with vata
- Aadhmana
- Atyartha usna asra (Blood)
- Vivarna
- Sada
- Phena vamana

One who has *atisarana* (watery passage) of *purīṣa* (faeces) which is *grhadhūmābha* (coloured like a soot) with *vāta* (flatus), *ādhmāna* (tympanites), *atyartha usna* (extremely warm) *asra* (*rakta*-blood), is *vivarna* (discoloured), has *sāda* (*aṅgaglāni*-malaise), *phena vamana* (frothy vomitus) : is a *viṣapīta* (one who has consumed poison).

*Vahni* (fire) also fails to burn down the *viṣajuṣṭa hṛdaya* (heart afflicted with poison) as it is a *cetanā sthāna* (seat of consciousness) which is occupied by the *viṣa* (poison) due to *vyāpya* (pervading) nature.

### Śaṅkāviṣa (doubt of being poisoned)

As per Ācārya Caraka :

[दुग्धकारे विद्धस्य केनचिद्विषशंकया ।

विषोद्वेगाज्ज्वरश्छर्दिर्मूर्च्छा दाहोऽपि वा भवेत् ॥

ग्लानिर्मोहोऽतिसारश्चाप्येतच्छंकाविषं मतम् । ]

CS.Ci. 23.221-222

Teatmes of Sankavisa

- ◆ Jvara
- ◆ daha
- ◆ chardi
- ◆ glani
- ◆ murccha
- ◆ moha
- ◆ atisar

When a person is bitten by something unknown in *duḥandhakāra* (pitch darkness), the *śaṅkā* (suspicion) of being stung by a poisonous being causes *viṣodvega* (features of pseudo-poisoning) in the form of *jvara* (fever), *chardi* (vomiting), *mūrcchā* (fainting), *dāha* (burning sensation), *glāni* (anxiety), *moha* (mental confusion/stupor) and *atisāra* (diarrhoea). This condition is called *śaṅkā-viṣa* (imaginary fear of snake bite).

चिकित्सितमिदं तस्य कुर्यादाश्वासयन् बुधः ॥

सिता वैगन्धिको द्राक्षा पयस्या मधुकं मधु ।

पानं समन्त्रपूताम्बु प्रोक्षणं सान्त्वहर्षणम् ॥

CS.Ci. 23.222-223

For the treatment of *śaṅkā-viṣa* (imaginary fear of snake bite), the wise physician should do *āśvāsana* (consoling) of the patient. He should be given *sitā* (sugar) with *gandhaka* (sulphur), *drākṣā*, *payasyā*, *madhuka* and *madhu* (honey) along with *mantrapūta ambu* (incanted water); this water should be used for *prokṣaṇa* (sprink-



ling); the patient should be *sāntva* (coaxed) and made *harṣa* (cheerful).

### Factors enhancing the effect of Poisons

As per Ācārya Vāgbhaṭa :

क्षुत्तृष्णाघर्मदौर्बल्यक्रोधशोकभयश्रमैः ।

अजीर्णवर्चोद्बतापित्तमारुतवृद्धिभिः ॥

तिलपुष्पफलाघ्राणभूबाष्पघनगर्जितैः ।

हस्तिमूषिकवादित्रनिःस्वप्नैर्विषसंकटैः ॥

पुरोवातोत्पलामोदमदनैर्वर्धते विषम् । AH.Ut. 35.61-63

Factors enhancing the effect of poisons are :

- *kṣudhā* (hunger)
- *tṛṣṇā* (thirst)
- *gharma* (sweating)
- *daurbalya* (weakness)
- *krodha* (anger)
- *śoka* (grief)
- *bhaya* (fear)
- *śrama* (fatigue)
- *ajīrṇa* (indigestion)
- *varcodravatā* (diarrhoea)
- *vṛddhi* (aggravation) of *pitta* and *māruta*
- smelling of *tilapuṣpa* or *madanaphala*
- *bhū-bāṣpa* (steam rising from ground)
- *ghana-garjanā* (thundering of clouds)
- sounds of *hasti* (elephants), *mūṣika* (rats) and *vāditra* (musical instruments)
- *niḥsvapna* (lack of sleep)
- *viṣasaṅkaṭa* (complications of poisoning)

- *purovāta* (easterly winds)
- smelling of *utpala* (lotus)
- *moda-madana* (union of erotic subjects).

### Signs of viṣamukta (relieved of poison)

As per Ācārya Suśruta :

प्रसन्नदोषं प्रकृतिस्थधातुमन्नाभिकांक्षं सममूत्रजिह्वम् ।  
प्रसन्नवर्णोन्द्रियचित्तचेष्टं वैद्योऽवगच्छेदविषं मनुष्यम् ॥

SS.K. 6.32

Signs of Visamukta

- Prasanna dosas
- Prakritistha Dhatus
- Annabhikanksa,
- Sama mutra
- Sama jihva
- Prasanna varna
- Prasanna Indriya
- Prasanna citta
- Prasanna casta

The patient should be declared by the physician as *viṣamukta* (relieved of poison) when his *doṣas* are *prasanna* (in normalcy) and *dhātus* are *prakṛtistha* (normalized), has *annabhikāṅkṣā* (desire for food), has *sama mūtra* (proper micturition) and *sama jihvā* (adequate perception to taste), his *varṇa* (complexion), *indriya* (sensory perceptions), *citta* (mind) and *ceṣṭā* (activities) are *prasanna* (in normalcy).





## DIAGNOSIS OF VIṢA (POISON)

### LEARNING OBJECTIVES

- All dravyas are pancamaha-bhautika
- Samanya lakshana jangama visa are nidra, tandra, klama, daha, paka, loma harsana, sophia, atisara
- Samanya laksana of sthavaravisa are jvara, hikka, dantharsha, galagraha, phena, vama, aruci, svasa, murccha.
- Dusivisa is alpa virya and varsa- gananu bandhi
- In homicidal poisoning inform the police as First step.

### Introduction

All the *dravyas* (substances) in our Universe are composed of *pañcamahābhūtas* (five basic elements); so is the *viṣa* (poison). *Viṣa* (poison) has its origin from *jala* (water); thus it is *āpya*; its *virya* (potency) fiery like *agni* (fire). This denotes fiery nature of *viṣa* (poison). Its heaviness and causing of stiffness (in the body) denotes its *pārthiva* nature; its rapidity is due to *vāyu mahābhūta*. Its capacity to penetrate minutest pores denotes presence of *ākāśa mahābhūta*. This proves that all the *viṣas* (poisons) have five *mahābhūtas* in them; matter to be considered is of predominant *mahābhūta*.

### Pāñcabhautika diagnosis of viṣa (poison)

*Pāñcabhautika* diagnosis of *viṣa* (poison) is done on the basis of *guṇas* (attributes) it has and the *karmas* (functions) it performs (i.e. clinical features that it exhibits). For this, we shall inspect the major *guṇas* (attributes) of poison along with their nature, composition, effect on *doṣa* and their *karma* (functions). (See Table No : 5.1

This table clarifies about the predominance of *teja* in *viṣa* (poison) followed by *vāyu*, *ākāśa*, *pṛthivī* and *jala* in sequence.

### Diagnosis of Poisoning

Diagnosis of poisoning is important, not only from therapeutic perspective but also from legal aspects. Prompt investigation into identification, dosage and route of administration of poison helps in better application of therapeutic measures. Saving the patient's life is physician's prime concern; along with this purpose of poisoning - whether suicidal or accidental or homicidal - should be investigated. Suicide and homicide, both are crime in the eyes of law.

### Diagnosis of poisoning in the living

Poisoning can be individualized or of a larger group. Mass poisoning can be induced through liquor, drugs, meals, drinks etc., where all the victims are present with similar signs and symptoms.

### Acute poisoning

Poisoning can be acute and complicated or chronic. In acute poisoning, the manifestation of signs & symptoms is within few hours of consuming; and within few passing hours, it attains complicated features. Features of poisoning are dissimilar to any known medical conditions. Mass poisoning, usually, is of grave nature and very rapidly either kills the patient or pardons him.



Table 5.1

Guna (attributes)	Nature	Pañcabhautika composition	Effect on dosa	Karma
1. Rūkṣatā	roughness	agni + vāyu + pṛthivi	<ul style="list-style-type: none"> <li>• aggravates vāta</li> <li>• pacifies kapha</li> </ul>	<ul style="list-style-type: none"> <li>• śoṣaṇa</li> <li>• rūkṣatā</li> <li>• loss of bala&amp;varṇa</li> </ul>
2. Uṣṇatā	warmth	agni	<ul style="list-style-type: none"> <li>• aggravates pitta</li> <li>• pacifies vātaand kapha</li> </ul>	<ul style="list-style-type: none"> <li>• svedana</li> <li>• mūrccchā</li> <li>• tṛṣā</li> <li>• dāha</li> <li>• formation of sveda</li> <li>• pravartana ofrasarakta etc.</li> <li>• pācana</li> </ul>
3. Tikṣṇatā	sharpness	agni	<ul style="list-style-type: none"> <li>• aggravates pitta</li> <li>• pacifies kapha</li> </ul>	<ul style="list-style-type: none"> <li>• śodhana (purification)</li> <li>• dāha (burning), pāka (suppuration), srāva (exudation) kara</li> <li>• lekhaṇa (scrapping)</li> </ul>
4. Sūkṣmatā	anutā (minuteness)	agni + vāyu + ākāśa	<ul style="list-style-type: none"> <li>• aggravatesvāta</li> </ul>	<ul style="list-style-type: none"> <li>• vivaraṇa</li> <li>• laghupāka</li> <li>• malaśoṣaṇa</li> <li>• entering the sūkṣma srotas</li> </ul>
5. Viśadatā	clearness	agni + vāyu + ākāśa + pṛthivi	<ul style="list-style-type: none"> <li>• aggravates vāta</li> </ul>	<ul style="list-style-type: none"> <li>• kṣālaṇa</li> <li>• kledaśoṣaṇa</li> <li>• vṛaṇa-ropāṇa</li> </ul>
6. Laghutā	lightness	agni + vāyu + ākāśa	<ul style="list-style-type: none"> <li>• aggravates kapha</li> <li>• pacifies vāta</li> </ul>	<ul style="list-style-type: none"> <li>• laṅghana</li> <li>• utsāha</li> <li>• sphūrti</li> <li>• malakṣaya</li> <li>• atṛpti</li> <li>• daurbalya</li> <li>• kṛṣatā etc.</li> </ul>

### General symptoms of poisoning - as per Āyurveda

#### Sāmānya lakṣaṇa (general features) of Jāṅgamaviṣa

Ācārya Caraka's view:

निद्रां तन्द्रां क्लमं दाहं सपाकं लोमहर्षणम् ।

शोफं चौवातिसारं च जनयेज्जंगमं विषम् ॥

CS.Ci. 23.15

Jāṅgama viṣa (poison of mobile origin/ animal poison) produces following:

- nidrā (somnolence)
- tandrā (drowsiness)
- klama (mental fatigue)
- dāha (burning sensation)
- pāka (inflammation)
- lomaharṣaṇa (horripilation)
- śopha (oedema)
- atisāra (diarrhoea).

#### Sāmānya lakṣaṇa (general features) of sthāvaraviṣa

Ācārya Caraka's view:

स्थावरं तु ज्वरं हिक्कां दन्तहर्षं गलग्रहम् ।

फेनवम्यरुचिश्चासमूर्च्छंश्च जनयेद्विषम् ॥ CS.Ci. 23.16

Sthāvara viṣa (poison of immobile origin/ vegetable poison) exhibits following general features:

- jvara (fever)
- hikkā (hiccough)
- dantaharṣa (tingling sensation in the teeth)
- galagraha (obstruction in the throat)
- phena (frothing from mouth)
- vamaṇa (vomiting)
- aruci (anorexia)
- śvāsa (dyspnoea/asthma)
- mūrccchā (fainting).



Table 5.2 : General features of *jāṅgama* and *sthāvara viṣas* (as per *Ācārya Caraka*)

<i>Sāmānya lakṣaṇa</i> (general features) of <i>jāṅgamaviṣa</i>	<i>Sāmānya lakṣaṇa</i> (general features) of <i>sthāvaraviṣa</i>
1. <i>nidrā</i> (somnia)lence)	1. <i>jvara</i> (fever)
2. <i>tandṛā</i> (drowsiness)	2. <i>hikkā</i> (hiccough)
3. <i>klama</i> (mental fatigue)	3. <i>dantahaṛṣa</i> (tingling sensation in the teeth)
4. <i>dāha</i> (burning sensation)	4. <i>galagraha</i> (obstruction in the throat)
5. <i>pāka</i> (inflammation)	5. <i>phena</i> (frothing from mouth)
6. <i>lomahaṛṣaṇa</i> (horripilation)	6. <i>vamana</i> (vomiting)
7. <i>śopha</i> (oedema)	7. <i>aruci</i> (anorexia)
8. <i>atisāra</i> (diarrhoea)	8. <i>śvāsa</i> (dyspnoea/ asthma)
	9. <i>mūrcchā</i> (fainting)

**Ācārya Suśruta's view:**

*Ācārya Suśruta* has not enlisted general features of *jāṅgamaviṣa* and while enumerating general features of *sthāvara-viṣas*, he has done so on the basis of *adhiṣṭhāna* (poisonous part).

उद्वेष्टनं मूलविषैः प्रलापो मोह एव च ।

जृम्भांगोद्वेष्टनश्चासा ज्ञेयाः पत्रविषेण तु ॥

मुष्कशोफः फलविषैर्दाहोऽन्वद्वेष एव च ।

भवेत् पुष्पविषैश्छर्दिराध्मानं मोह एव च ॥

त्वक्सारनिर्यासविषैरुपयुक्तैर्भवन्ति हि ।

आस्यदौर्गन्ध्यपारुष्यशिरोरुक्कफसंस्वाः ॥

फेनागमः क्षीरविषैर्विड्भेदो गुरुजिह्वता ।

हृत्पीडनं धातुविषैर्मूर्च्छा दाहश्च तालुनि ॥

प्रायेण कालघातीनि विषाण्येतानि निर्दिशेत् ।

SS.K. 2.7-11

- *Mūlavīṣa* (root poison) causes →
  - ♦ *udveṣṭana* (cramps)
  - ♦ *pralāpa* delirium)
  - ♦ *moha* (mental confusion)
- *Patraviṣa* (leaf poison) causes →
  - ♦ *jṛmbhā* (yawning)
  - ♦ *aṅga udveṣṭana* (cramps in limbs)
  - ♦ *śvāsa* (dyspnoea/ asthma)
- *Phalaviṣa* (fruit poison) causes →
  - ♦ *muṣkaśopha* (inflammation of scrotum)
  - ♦ *dāha* (burning sensation)
  - ♦ *annadveṣa* (aversion to food)
- *Puṣpaviṣa* (flower poison) causes →
  - ♦ *chardi* (vomiting)
  - ♦ *ādhmāna* (flatulence)
  - ♦ *moha* (mental confusion)
- *Tvak* (bark), *sāra* (pith) and *niryāsa* (exudation) *viṣa* causes →

♦ *āsyā-daurgandhya* (halitosis)

♦ *pāruṣya* (roughness)

♦ *śiroruk* (headache)

♦ *kapha saṁsrāva* (excessive discharge of mucus)

▪ *Kṣīraviṣa* (latex poison) causes →

♦ *phena-āgama* (frothing from mouth)

♦ *vidbheda* (diarrhoea)

♦ *guru-jihvatā* (heaviness in tongue)

▪ *Dhātuviṣa* (mineral poison) causes →

♦ *hrtpīḍana* (cardiac distress)

♦ *mūrcchā* (fainting)

♦ *tālu dāha* (burning sensation in palate).

Generally, these poisons are fatal after certain period.

**General features of *kandaviṣa* (tuber poisons)**

As per *Ācārya Suśruta* :

स्पर्शाज्ञानं कालकूटे वेपथुः स्तम्भ एव च ।

ग्रीवास्तम्भो वत्सनाभे पीतविण्मूत्रनेत्रता ॥

सर्षपे वातवैगुण्यमानाहो ग्रन्थिजन्म च ।

ग्रीवादौर्बल्यवाक्संगौ पालकेऽनुमताविह ॥

प्रसेकः कर्दमाख्येन विड्भेदो नेत्रपीतता ।

वैराटकेनांगदुःखं शिरोरोगश्च जायते ॥

गात्रस्तम्भो वेपथुश्च जायते मुस्तकेन तु ।

शृंगीविषेणांगसाददाहोदरविवृद्धयः ॥

पुण्डरीकेण रक्तत्वमक्षणोर्वृद्धिस्तथोदरे ।

वैवर्ण्यं मूलकैश्छर्दिर्हिक्काशोफप्रमूढता ॥

चिरेणोच्छ्वसिति श्यावो नरो हालाहलेन वै ।

महाविषेण हृदये ग्रन्थिशूलोद्गमौ भृशम् ॥

कर्कटेनोत्पतत्यूर्ध्वं हसन् दन्तान् दशत्यपि ।

SS.K. 2.12-18

*Kanda-viṣa* (tuber poisons) are *tikṣṇa* (virulent natured).



Table 5.3

Name of kandaviṣa (tuber poison)	General features
1. Kālakūṭa	<ul style="list-style-type: none"> <li>• <i>sparsājñāna</i> (loss of touch sensation)</li> <li>• <i>vepathu</i> (trembling)</li> <li>• <i>stambha</i> (stiffness)</li> </ul>
2. Vatsanābha	<ul style="list-style-type: none"> <li>• <i>grīvāstambha</i> (rigidity in neck)</li> <li>• <i>pīta viṇ, mūtra</i> and <i>netra</i> {yellowness in feces, urine and eyes}</li> </ul>
3. Sarsapa	<ul style="list-style-type: none"> <li>• <i>vātavaigunya</i></li> <li>• <i>ānāha</i> (abdominal distension)</li> <li>• appearance of <i>granthi</i> (cysts)</li> </ul>
4. Pālaka	<ul style="list-style-type: none"> <li>• <i>grivādaurbalya</i> (weakened neck)</li> <li>• <i>vāksarṅga</i> (obstructed speech)</li> </ul>
5. Kardama	<ul style="list-style-type: none"> <li>• <i>praseka</i> (profuse salivation)</li> <li>• <i>viḍbheda</i> (diarrhoea)</li> <li>• <i>netrapīṭatā</i> (yellowish discoloration of eyes)</li> </ul>
6. Vairāṭaka	<ul style="list-style-type: none"> <li>• <i>aṅgaduḥkha</i> (malaise)</li> <li>• <i>śīroroga</i> (headache)</li> </ul>
7. Mustaka	<ul style="list-style-type: none"> <li>• <i>gātrastambha</i> (stiffness of body)</li> <li>• <i>vepathu</i> (trembling)</li> </ul>
8. Śṃgviṣa	<ul style="list-style-type: none"> <li>• <i>aṅgāsāda</i> (malaise)</li> <li>• <i>dāha</i> (burning sensation)</li> <li>• <i>udara-vivṛddhi</i> (abdominal enlargement)</li> </ul>
9. Puṇḍarīka	<ul style="list-style-type: none"> <li>• <i>raktatva akṣi</i> (redened eyes)</li> <li>• <i>udaravṛddhi</i> (abdominal enlargement)</li> </ul>
10. Mūlaka	<ul style="list-style-type: none"> <li>• <i>vaivarnya</i> (discolouration)</li> <li>• <i>chardi</i> (vomiting)</li> <li>• <i>hikkā</i> (hiccough)</li> <li>• <i>śopha</i> (oedema)</li> <li>• <i>pramūḍhatā</i> (loss of consciousness)</li> </ul>
11. Hālāhala	<ul style="list-style-type: none"> <li>• <i>ciraśvāsa</i> (prolonged breathing)</li> <li>• <i>śyāva</i> (blackish discoloration)</li> </ul>
12. Mahāviṣa	<ul style="list-style-type: none"> <li>• <i>granthi</i> (knotted growth) in <i>hṛdaya</i> (cardiac region) and</li> <li>• severe <i>śūla</i> (pain) in <i>hṛdaya</i> (cardiac region)</li> </ul>
13. Karkaṭaka	<ul style="list-style-type: none"> <li>• jumping, laughing and biting of <i>danta</i> (teeth)</li> </ul>

### General symptoms of poisoning, as per Modern Toxicology

As per modern Toxicology, there are no confirmed symptoms or group of symptoms for an acute poisoning. Some general symptoms that we encounter in acute poisoning are -

- ◆ Vomiting
- ◆ Diarrhea
- ◆ Convulsions and
- ◆ Fainting/syncope.

Other symptoms that are commonly associated with acute poisoning are -

- acute colic
- borborygmi
- excessive salivation
- deformed pupils
- buzzing in the ears
- hyperthermia
- sweating
- bluish discoloration
- coldness of body-parts
- delirium
- neurological symptoms
- respiratory distress
- anxiety
- restlessness etc.

The vagueness of symptoms, associated with poisoning, calls for thorough and meticulous examination of the patient and surrounding he is in. Therefore, the physician should carefully examine such aspects before confirming the diagnosis.

### Specific symptoms of poisoning

There are certain specific symptoms associated with specific poisonous substances. Such information is useful in ascertaining the nature of poison. These specific symptoms are listed below :

Table 5.4

S. No.	Specific Symptom	Probable poison
1.	Sudden death	<ul style="list-style-type: none"> <li>• Potassium cyanide</li> <li>• Hydrocyanic acid</li> <li>• Carbon monoxide</li> <li>• Carbon dioxide</li> <li>• Ammonia</li> <li>• Oxalic acid</li> </ul>



S. No.	Specific Symptom	Probable poison
2.	Loss of consciousness	<ul style="list-style-type: none"> <li>• Morphine</li> <li>• Alcohol</li> <li>• Camphor</li> <li>• Chloroform</li> <li>• Choral hydrate</li> </ul>
3.	Heart failure	<ul style="list-style-type: none"> <li>• Acids</li> <li>• Alkalies</li> <li>• Arsenic</li> <li>• Garciniamorella</li> <li>• Aconitum ferox</li> <li>• Antimony</li> <li>• Antipyretics</li> </ul>
4.	Paleness of the face	<ul style="list-style-type: none"> <li>• Antifebrin</li> </ul>
5.	Delirium	<ul style="list-style-type: none"> <li>• Cannabis sativa</li> <li>• Thorn apple</li> <li>• Alcohol</li> <li>• Camphor</li> <li>• Henbane</li> <li>• Atropabelladona</li> </ul>
6.	Tetanus like convulsions	<ul style="list-style-type: none"> <li>• Nux vomica</li> <li>• Arsenic</li> </ul>
7.	Paralysis	<ul style="list-style-type: none"> <li>• Aconite</li> <li>• Arsenic</li> <li>• Lead</li> <li>• Conium</li> </ul>
8.	Dilatation of the pupils	<ul style="list-style-type: none"> <li>• Thorn apple</li> <li>• Atropabelladona</li> <li>• Aconite</li> <li>• Alcohol</li> <li>• Chloroform</li> <li>• Henbane</li> <li>• Opium (last stage)</li> </ul>
9.	Constriction of pupils	<ul style="list-style-type: none"> <li>• Morphine</li> <li>• Carbolic acid</li> <li>• Chloral hydrate</li> </ul>
10.	Dryness of the skin	<ul style="list-style-type: none"> <li>• Thorn apple</li> <li>• Henbane</li> <li>• Atropabelladona</li> </ul>
11.	Humidity of the skin	<ul style="list-style-type: none"> <li>• Opium</li> <li>• Aconite</li> <li>• Alcohol</li> <li>• Tobacco</li> <li>• Antimony</li> <li>• In cardiac depression due to other poisons</li> </ul>
12.	Bleached face	<ul style="list-style-type: none"> <li>• Corrosive acids and alkalis</li> <li>• Calomel</li> <li>• Carbolic acid</li> </ul>
13.	Vomiting	<ul style="list-style-type: none"> <li>• Arsenic</li> <li>• Antimony</li> <li>• Aconite</li> <li>• Digitalis</li> <li>• Ammonia</li> <li>• Phosphorus etc.</li> </ul>

Along with these mentioned symptoms the pulse, heart rate, respiration, state of consciousness, mental stability etc. of the patient should be closely observed for reaching a correct diagnosis.

### Chronic poisoning

Chronic poisoning, in *Āyurveda*, is termed as *dūṣiṣa*.

As per *Ācārya Vāgbhaṭa* :

वीर्याल्पभावादविभाव्यमेतत् कफावृतं वर्षगणानु-  
बन्धि। तेनार्दितो भिन्नपुरीषवर्णो दुष्टास्ररोगी तृडरोच-  
कार्तः॥ मूर्च्छन् वमन् गदगदवाक् विमुहान् भवेच्च  
दूष्योदरलिंगजुष्टः। AH.Ut. 35.34-35

Though *dūṣiṣa* is *alpa vīrya* (mild in potency), it is not to be overlooked; since it is *varṣa-gaṇānubandhi* (abodes body for years to come), it gets *āvṛtta* (enveloped) by *kapha*. Bothered by it, the person eliminates *bhinna purīṣa* (loose faeces) of varied *varṇa* (colours), becomes a *rogī* (patient) of *duṣṭa-asra* (vitiating blood) along with *tṛḍ* (thirst) and *arocaka* (anorexia); the patient suffers from *mūrcchā* (fainting), *vamana* (vomiting), *gadgada vāk* (incoherent speech), *moha* (stupor) and develops *liṅga* (clinical features) of *dūṣyodara* (abdominal disorders).

As per Modern Toxicology :

In chronic poisoning the signs and symptoms develop gradually and, at times, present themselves on certain occasions remain concealed. At times the course of chronic poisoning is so slow that its signs and symptoms represent themselves very mildly or as symptoms of another disease/illness; due to this mildness of course diagnosis of chronic poisoning is completely missed. Here is a list of some extremely common signs and symptoms presented in chronic poisoning -

- sense of ill-being
- feeling of sickness
- restlessness/anxiety
- continuous or abrupt manifestation of ill feeling
- weakness
- loss of weight



- on and off presentation of gastro-intestinal symptoms etc.

### Diagnosis of poisoning in the dead

For diagnosis of poisoning in the dead following four measures are adopted -

- Post-mortem examination
- Chemical analysis
- Experiments on animals and
- Moral and circumstantial evidences.

#### Post-mortem examination

For diagnosis of poisoning the cadaver should be thoroughly examined from outside and later the internal organs and related structures should be examined by meticulously dissecting the body. Some organs should be specifically checked for any traces of poison.

Ācārya Vyādhya Vāgbhaṭa mentions site, in case of death due to poisoning, where viṣa (poison) can be found; he quotes -

पीतं मृतस्य हृदये जग्घदिग्धाभिविद्धयोः ।  
दंशे तिष्ठति भूयिष्ठं सर्वतः पिण्डितं विषम् ।

AS.Ut. 40.26

In case of death due to gulped viṣa (poison), the poison is found in the *hṛdaya* (heart) of the cadaver; it is found at the site (of bite/ piercing) when bitten by poisonous creature or pierced by a poisonous weapon (arrow).

#### External examination

Classics on *Āyurveda* have elaborated external features of incurable poisoning and signs to look for in the cadaver.

As per Ācārya Suśruta-

शस्त्रक्षते यस्य न रक्तमेति राज्यो लताभिश्च न संभवन्ति ॥  
शोताभिरदिग्धश्च न रोमहर्षो विषाभिभूतं परिवर्जयेत्तम् ।  
जिह्वा सिता यस्य च केशशातो नासावभक्तगश्च स  
कण्ठभंगः ॥

कृष्णः सरक्तः श्वयथुश्च दंशे हन्वोः स्थिरत्वं च स  
वर्जनीयः । वर्तिर्घना यस्य निरति वक्त्रादृक्तं स्रवेदूर्ध्व-  
मधश्च यस्य ॥

दंष्ट्रानिपाताः सकलाश्च यस्य तं चापि वैद्यः परिवर्ज-  
येत्तु । उन्मत्तमत्यर्थमुपदुतं वा हीनस्वरं वाऽप्यथवा  
विवर्णम् ॥

सारिष्टमत्यर्थमवेगिनं च जह्यान्नरं तत्र न कर्म कुर्यात् ॥

SS.K. 3.40-44

On *kṣata* (injury) by *śastra* (sharp instruments) *rakta* (blood) doesn't ooze; *rāji* (streaks) fails to appear on striking with a *latā* (strap); sprinkling of *śita* (cold) water fails to cause *romaharṣa* (horripilation) - these cases of poisoning should be rejected.

Following patients are, also, unfit for treatment - one having *sita jihvā* (whitish tongue), suffering from *keśaśāta* (falling of hairs), *nāsāvabhaṅga* (destruction of nasal ridge), *kaṅṭhabhaṅga* (hoarseness of voice), *kṛṣṇa rakta* (blackish red) *śvayathu* (swelling) at the site of *daṁśa* (bite) and *hanu sthiratva* (lock jaw). Also, ones having *ghana varti* (thick mucus wick) peeking out from *vaktra* (mouth), *rakta srāva* (bleeding) in *ūrdhva* (upward) and *adhah* (downward) directions, striken by all *daṁṣṭrās* (fangs), one who is *unmatta* (insane), having number of *upadravas* (complications), with *hīnasvara* (frail voice), *vivarṇa* (discolouration), having *ariṣṭas* (signs of imminent death) and absence of *vega* (impulse) are to be rejected for treatment.

#### Internal examination

This is considered as the actual examination of the cadaver. Surgical incision is made on the body starting from thorax till the pelvis. The exposed viscera and organs are carefully examined and if required small specimen of organs are preserved for bio-chemical analysis.

Post-mortem examination should be done with utmost care and alertness. Special attention should be given while examining the gastro-intestinal tract because it's here that signs of corrosive and irritant poisons can be found. Signs that should be specifically looked for are -

- ♦ hyperaemia
- ♦ smoothness
- ♦ ulceration
- ♦ perforation etc.

Viscera or abdominal contents should be preserved for histopathological and biochemical analysis respectively.

#### Chemical analysis

Chemical analysis is useful for diagnosing suspected poisoning in patients either alive or dead. In living patient the food, drinks, vomitus, urine, faeces and other secretions should be



sent for chemical analysis. In dead individuals, following parts or substances should be sent :

- Stomach, intestines etc.
- Materials found in stomach, intestines etc.
- Skin, hair, nails, bones, teeth etc. and
- Urine and faeces.

These substances should be sent to concerned laboratories with utmost care and safety. Among all the specimen examination of parenchyma is considered very important and therefore it should also be sent for laboratory analysis. Presence of poison in parenchyma is considered a vital sign in diagnosis of poisoning.

#### **Experiments on animals**

Food-articles, medicines, vomitus etc. of patient of suspected poisoning is fed to dogs, cats and other domesticated animals. These animals are also affected by the poison in the same manner. Therefore, the animals are fed with the suspected articles and the signs are closely observed. Similarity of signs in humans and animals confirms about the poisoning.

But it should be noted that some animals are immune to certain poisonous substances. E.g. Pigeon is not affected by opium and similarly rabbit is immune to stramonium.

Certain poisons affect certain animals in unique way; e.g. datura and belladonna cause prolonged dilatation of pupils (for a week) in cats.

#### **Moral and circumstantial evidence**

Visiting the site of crime provides one with food-articles, medicines, alcohol, empty or half-empty bottles, needle and syringes, fecal waste, vomitus etc. of the patient. These can prove vital in diagnosis of poisoning.

Relatives, friends, acquaintances, co-workers etc. also provide with vital clues for confirming the case of poisoning. Restlessness of relatives to cremate the body etc. should raise doubt about some wrong-doing.

All these factors prove vital in diagnosis of poisoning.

#### **Duty of the Medical practitioner in suspected poisoning**

- The responsibility of physician increases in case of suspected poisoning. He has to, along with medical care, be alert to circumstances and legal proceedings. Therefore, the physician should note the name, address, sex, age, occupation, date and time of arrival, accompanying members and complete case history of the patient. Dying declaration, in case of dying patient, should be noted immediately.
- Along with collection of above mentioned facts, the physician should promptly diagnose the suspected poisoning. Confirming the source of poisoning, nature of poison and its effect on the human body is the duty of the physician; once the nature of poison is confirmed the physician should promptly treat the patient and abate the spreading of poison at the earliest. In case of doubt, the physician should stick to general line of treatment and manage the patient symptomatically.
- If the physician is a private practitioner and he learns that the poisoning is suicidal or accidental then he is not bound by law to inform the investigating officers about the same. But if the investigating officers or judicial system asks to assist then he should do the same on moral grounds.
- In case of sudden or accidental poisoning, if the physician feels that there can be a mass poisoning then he should promptly inform the concerned authorities about the same. This can help in immediate measures to stop spreading of poisoning and thus saving valuable lives.
- In case of suspected homicidal poisoning, the physician should immediately consult an expert Toxicologist and Forensic Science experts. On confirmation of homicidal poisoning, the physician should inform the Police and other concerned authorities. If the patient on death bed then the dying



declaration of the patient should be quickly recorded.

- The patient should be immediately removed from the location of poisoning and it is always judicious to admit him in a hospital or a nursing home. The staff of the concerned hospital should also be informed about the whole scenario and should be asked to vigil the food, medicines, relatives of the patient. If shifting of the patient, in case, is not possible from the location of poisoning then an expert and reliable nursing staff should be appointed and asked to vigil the patient and his surroundings. If this arrangement is also not possible, due to financial constraints, in case the reliable and faithful friends or close relatives should be deployed for the same and they should also be made aware of the whole situation.
- All the documents and evidences, in case of suspected poisoning, should be carefully preserved. Gastric contents, vomitus, fecal matter, blood samples etc. should be stored in containers and appropriately labeled. Documents or reports of bio-chemical or histo-pathological analysis should be preserved. Sources or modes of poisoning like needles, syringes, bottles, food-articles, medicines etc. should be collected from the site and preserved after labeling them. These might be of use in legal matter in future.
- In case of death due to suspected poisoning death certificate should not be issued immediately. For investigation the information should be forwarded to legal authorities.
- Physician should be careful while expressing his views about the suspected poisoning. He should be well-equipped with evidences to prove his views. Even if he is confident about the diagnosis it is required that he expresses views only at the appropriate place, at the appropriate time and before the appropriate authority.
- In case of survival after poisoning the place, time and authority to whom the physician discloses his views changes from case to case. This should be done only after thorough consultation with the medico-legal experts.
- Cases of accidental poisoning are comparatively easier. Usually individuals visiting the physician are aware of the situation and this helps in diagnosis of the poisoning. The physician can immediately begin with therapeutic measures.
- Cases of suicidal poisoning are also without much complication. The circumstantial evidences are pretty much clear. In case of death the duty of the physician is to inform the legal authorities and in case of survival the patient should be counseled to express himself.
- The difficulty arises in case of homicidal poisoning. It is difficult for both medical and medico-legal experts. Individuals related to the dead also refrain from saying anything. Circumstantial evidences are also altered, misplaced or totally removed to confuse the investigating team.
- Medical officers of Government and public hospitals, in case of poisoning - suicidal/ accidental/ homicidal etc., should immediately inform the legal authorities about the same.





## GENERAL TREATMENT OF VIṢĀKTATĀ (POISONING)

### LEARNING OBJECTIVES

- Two types of general treatment of visa
  - samanya - cikitsa
  - visista - cikitsa
- Treatment of both trsnā and visa are similar.
- Visa Upkarma - 24 (therapeutic modules)
- Recitation of mantras is the best to counteract the effects of visa.
- Arista Bandhan - 2
- Salaka - 3 (Sthula, anu, dirgha)
- Raktamoksana (Blood - letting) - 4 types  
Pracchana, srnga, jalauka, vyadhana
- Vamana and virecana help in immediate eradication of poison.
- Nasya karma used in fifth stage of poisoning.
- Agadas (Anti poisonous formulations) should be used only in visa justa (poisoned individual)
- Jangama - visa cures sthavara visa and vice - versa.
- Arista (Bandhan) applied four fingers above the site of dama (bite).

### General treatment of viṣa (poisoning)

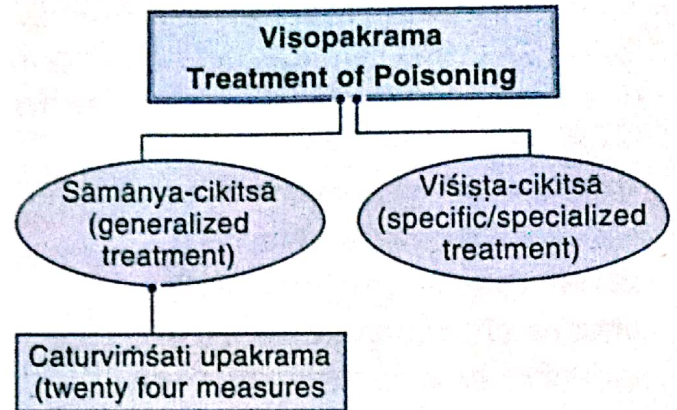
General treatment of viṣa (poisoning) consists of two kinds -

- Sāmānya-cikitsā (generalized treatment)
- Viśiṣṭa-cikitsā (specific/specialized treatment)

Sāmānya-cikitsā (generalized treatment) caters to all kinds of poisoning cases; which is found to be useful even in cases where the nature of poison and poisoning are not certain.

Viśiṣṭa-cikitsā (specific/specialized treatment) is specific to the poison in question; e.g. treatment of poisoning by *vatsanābha*; treatment of poisoning by *kucalā*; management of

*sarpadamśa* (snake bite) etc. These will be mentioned in forthcoming chapters.



It is important to consider certain points; so says *Ācārya Suśruta*: Prior to *sāmānya-cikitsā* (generalized treatment) of poisoning,

देशप्रकृतिसात्यर्तुविषवेगबलाबलम् ।

प्रधार्य निपुणं बुद्ध्या ततः कर्म समाचरेत् ॥ SS.K. 5.34

One should start the treatment after considering well *deśa* (land as well as the specific part of the patient's body), *prakṛti* (constitution), *sātmya* (suitability), *rtu* (season), *viṣavega* (velocity of the poison) and patient's *bala-abala* (strength and otherwise).

Similar view are penned down by *Ācārya Vāgbhaṭa*: he quotes -

इति प्रकृतिसात्यर्तुस्थानवेगबलाबलम् ।

आलोच्य निपुणं बुद्ध्या कर्मानन्तरमाचरेत् ॥

AH.Ut. 35.65

i.e. the wise physician should initiate treatment only after considering the *prakṛti* (constitution), *sātmya* (suitability), *rtu* (season), *sthāna* (location - both habitat and body), *vega* (velocity of the poison) and patient's *bala-abala* (strength and otherwise).



### Treatment modules for *viṣa* (poisoning)

Explaining about the reason for preceding of *trṣṇā* (thirst) chapter to that of *viṣa* (poisoning), *Ācārya Cakrapāṇi* says that the line of treatment of both *trṣṇā* (thirst) and *viṣa* (poisoning) is similar, and both are relieved by *śīta* (cooling) therapies.

शीतोपशमनप्राधान्यसामान्यान्नुष्णाचिकित्सितमनु विष-  
चिकित्सितमुच्यते। Ck. on CS.Ci. 23.1-3

This advocates usage, predominantly, of *śīta* (cooling) therapies in treating *viṣa* (poisoning). *Ācārya Caraka* has enumerated *caturviṃśati upakrama* (twenty four therapeutic modules) for *viṣa* (poisoning); these are -

मन्त्रारिष्टोत्कर्तननिष्पीडनचूषणाग्निपरिषेकाः ।  
अवगाहरक्तमोक्षणवमनविरेकोपधानानि ॥  
हृदयावरणाञ्जननस्यधूमलेहौषधप्रशमनानि ।  
प्रतिसारणं प्रतिविषं संज्ञासंस्थापनं लेपः ॥  
मृतसञ्जीवनमेव च विंशतिरेते चतुर्भिरधिकाः ।  
स्युरुपक्रमा यथा चे यत्र योज्याः शृणु तथा तान् ॥  
CS.Ci. 23.35-37

In order to offer remedy for the patient afflicted with *viṣa* (poisoning), the twenty four *upakrama* (therapeutic modules) to be adopted are as follows -

- Recitation of *mantras* (incantations);
- *Ariṣṭā-bandhana* (fastening an amulate infused with *mantras* or a strapping above the bite-site);
- *Utkartana* (excision of the part stricken with the venomous bite);
- *Niṣpīdana* (squeezing out blood from the bite-site);
- *Cūṣaṇa* (sucking out the poison from the bite-site);
- *Agnikarma* (cauterization);
- *Parīṣeka* (irrigation); *Sprinkling*
- *Avagāha* (bathing with medicated water);
- *Raktamokṣaṇa* (blood-letting);
- *Vamanakarma* (emesis);
- *Virecanakarma* (purgation);
- *Upadhāna* (application of medicine on the incision made over the scalp);

- *Hṛdayāvaraṇa* (cardio-protective measures);
- *Añjanakarma* (application of collyrium);
- *Nasyakarma* (nasal errhines);
- *Dhūmapāna* (smoking therapy);
- *Leha-prāśana* (linctus drugs);
- *Auśadha-sevana* (anti-toxic drugs or using as an amulet);
- *Pradhamaṇa* (blowing of drugs);
- *Pratisāraṇa* or *pragharṣaṇa* (scrubbing of drugs);
- *Prativiṣa* (usage of poisons to counteract effect original poison);
- *Sañjñāsthāpana* (drugs for restoration of consciousness);
- *Lepa* (anointing); and
- *Mṛta-sanjivana* (measures for revival of life).

Table 6.1

S. No.	Upakrama (therapeutic modules)	Usefulness
1.	Recitation of <i>mantras</i> (incantations)	<i>viṣa pratiro-dhana</i> (abate-ment of poison)
2.	<i>Ariṣṭā-bandhana</i> (fastening an amulate infused with <i>mantras</i> or a strapping above the bite-site)	obstruction to entry and spreading of <i>viṣa</i> (poison)
3.	<i>Utkartana</i> (excision of the part stricken with the venomous bite)	
4.	<i>Niṣpīdana</i> (squeezing out blood from the bite-site)	
5.	<i>Cūṣaṇa</i> (sucking out the poison from the bite-site)	
6.	<i>Agnikarma</i> (cauterization)	
7.	<i>Parīṣeka</i> (irrigation)	
8.	<i>Avagāha</i> (bathing with medicated water)	
9.	<i>Raktamokṣaṇa</i> (blood-letting)	<i>śodhana</i> (cleansing)
10.	<i>Vamanakarma</i> (emesis)	
11.	<i>Virecanakarma</i> (purgation)	
12.	<i>Upadhāna</i> (application of medicine on the incision made over the scalp)	<i>viṣa-samana</i> (pacification of poison)
13.	<i>Hṛdayāvaraṇa</i> (cardio-protective measures)	symptomatic <i>upakrama</i>



S. No.	Upakrama (therapeutic modules)	Usefulness
14.	Añjanakarma (application of collyrium)	viṣa-śamana (pacification of poison)
15.	Nasyakarma (nasal errhines)	viṣaśodhana (cleansing of poison)
16.	Dhūmapāna (smoking therapy)	viṣa-śamana (pacification of poison)
17.	Leha-prāśana (linctus drugs)	
18.	Auśadha-sevana (anti-toxic drugs or using as an amulet)	viṣa pratirodhana (abatement of poison)
19.	Pradhamaṇa (blowing of drugs)	viṣa-śamana (pacification of poison)
20.	Pratisāraṇa or pragharṣaṇa (scrubbing of drugs)	
21.	Prativīṣa (usage of poisons to counteract effect original poison)	viṣa pratirodhana (abate-ment of poison)
22.	Sañjīrāsthāpāna (drugs for restoration of consciousness)	symptomatic upakrama
23.	Lepa (anointing)	viṣa-śamana (pacification of poison)
24.	Mṛta-sañjivana (measures for revival of life)	symptomatic upakrama

### (1) Recitation of mantras (incantations)

Ācārya Cakrapāṇi says about the recitation of mantras (incantations) is the best measure to tackle or counteract the effects of viṣa (poison); therefore, it is foremost in the list of twenty four upakramas (therapeutic modules). He quotes -

मन्त्रस्य विषहरेषु श्रेष्ठत्वाद्ग्रेऽभिधानम् ।

Ck. on CS.Ci. 23.35-37

As per Ācārya Suśruta-

देवब्रह्मर्षिभिः प्रोक्ता मन्त्राः सत्यतपोमयाः ।

भवन्ति नान्यथा क्षिप्रं विषं हन्युः सुदुस्तरम् ॥

विषं तेजोमयैर्मन्त्रैः सत्यब्रह्मतपोमयैः ।

यथा निवार्यते क्षिप्रं प्रयुक्तैर्न तथौषधैः ॥ SS.K. 5.9-10

Mantras of the nature of *satya* (truth) and *tapa* (penance), delivered by *devarṣi* and *brahmarṣi*, never fails and as such destroy even the *dustura viṣa* (dreadful poison) immediately.

Viṣa (poison) is not abolished by prescribed *auśadhas* (drugs) so quickly as by potent *mantras* consisting of *satya* (truth), *Brahma* (divine power) and *tapa* (penance).

मन्त्राणां ग्रहणं कार्यं स्त्रीमांसमधुवर्जिना ।

मिताहारेण शुचिना कुशास्तरणशायिना ॥

गन्धमाल्योपहारैश्च बलिभिश्चापि देवताः ।

पूजयेन्मन्त्रसिद्ध्यर्थं जपहोमैश्च यत्नतः ॥ SS.K. 5.11-12  
Mantras should be attained by one refraining from *strī* (women), *māmsa* (meat) and *madhu* (wine); taking *mita-āhāra* (little food), *śuci* (pure and clean) and *śayana* (bedding) on *kuśa* grass. For success of the *mantra*, one should also worship the *devatā* (Gods) devotedly with the offerings of *gandha* (perfumes), *mālā* (garlands) and *bali* (oblations), *japa* (chan-ting of *mantra*) and *homa* (sacrificial oblations).

मन्त्रास्त्वविधिना प्रोक्ता हीना वा स्वरवर्णतः ।

यस्मान् सिद्धिमायान्ति तस्माद्योज्योऽगदक्रमः ॥

SS.K. 5.13

Mantras fail to fulfil their objective if enunciated in defective way or are deficient in *svara* (accents) and *varṇa* (letters); in such case, *agada* (anti-poisonous remedy) must be used.

### (2) Ariṣṭā-bandhana (fastening an amulate infused with mantras or a strapping above the bite-site)

Ācārya Cakrapāṇi categories *ariṣṭā* into two kinds;

- tying of an *rajju* (talismán) etc. empowered with *mantras* and
- tying a rope/string above the proximal part (without *mantras*).

He quotes :

अरिष्टा द्विविधा-मन्त्रेण रज्ज्वादिभिर्वा विषोपरि-  
बन्धः ।

Ck. on CS.Ci. 23.35-37

As per Ācārya Suśruta-

सर्वैरेवादितः सर्पैः शाखादष्टस्य देहिनः ।

दंशस्योपरि बध्नीयादरिष्टाश्चतुरंगुले ॥

प्लोतचर्मान्तवल्कानां मृदुनाऽन्यतमेन वै ।

न गच्छति विषं देहमरिष्टाभिर्निवारितम् ॥ SS.K. 5.3-4

If bitten in *śākhās* (extremities) by a *sarpa* (snake) of any type, *ariṣṭā* (tourniquet) should be applied four fingers above the site of the *daṁśa* (bite).



This may be of some *myrdu* (soft) material like *plota* (cotton cloth), *carma* (leather strap), *antali-  
valka* (tree bark). Restrained by *ariṣṭā* (tourni-  
quet), the *viṣa* (poison) does not spread in  
the body.

अरिष्टामपि मन्त्रश्चैव बध्नीयान्मन्त्रकोविदः। SS.K. 5.8  
*Ariṣṭā* (tourniquet) should be bound with  
*mantras* by the expert in them.

Ācārya Caraka has used the word 'veṇikā' instead  
of 'ariṣṭā'; he quotes -

दंशात्तु विषं दष्टस्याविसृतं वेणिकां भिषग्बद्ध्वा।

CS.Ci. 23.38

*Ariṣṭā-bandhana* (tourniquet) is, literally, a part  
of first-aid that is deployed immediately after  
the snake bite. This arrests any further spreading  
of venom in the victim's body. After tying the  
*ariṣṭā* (tourniquet), other measures should be  
adhered to. Ācārya Caraka advises application  
of *niṣpīḍana* (squeezing), *utkartana* (excision) of  
the site, sucking out with *mukha* (mouth) filled  
with *yava cūrṇa* (barley flour) or *pāṁśu* (dust),  
*dahana* (cauterization), *raktamokṣaṇa* (blood  
letting) etc.

Site for tying *ariṣṭā* (tourniquet) is four fingers  
above the site of bite; some scholars advice about  
the tying of three *ariṣṭās* (tourniquet) at four,  
eight and twelve finger distances.

Ācārya Vṛddha Vāgbhaṭa advises -

बन्धो देशानुसारेण नातिगाढश्लथो हितः।

दंशपूतित्वशोफादीन् कुरुते ह्यतिपीडितः॥

अशक्तः शिथिलो रोद्धुं विषं देशान्तरं व्रजत्॥

AS.Ut. 42.6

Depending upon the nature of *deśa* (site), *ariṣṭā*  
(tourniquet) should be *na ati gāḍha* (not very  
tight) or *na ati ślatha* (not very loose); if *atipīḍita*  
(very tight), it causes *pūtitva* (foul smell) and  
*śopha* (swelling) at the site of *daṁśa* (bite); if  
*śithila* (very loose), the *ariṣṭā* (tourniquet) fails  
to prevent spreading of *viṣa* (poison) to other  
*deśas* (sites).

(3) **Utkartana (excision of the part stricken with the  
venomous bite)**

*Utkartana* is excision of the part stricken with  
the venomous bite.

Ācārya Caraka quotes -

तरुरिव मूलच्छेदादंशच्छेदान्न वृद्धिमेति विषम्।

CS.Ci. 23.44

As a tree stops growing as soon as its root is  
cut, similarly, the (effect of) poison does not  
grow or spread (get aggravated) as soon as its  
site (of bite) is excised.

(4) **Niṣpīḍana (squeezing out blood from the bite-site)**

*Niṣpīḍana* is squeezing out blood from the site  
of bite; after incising, the site should be pressed  
all around to squeeze out venomous blood; this  
helps in extraction of poison and minimizing  
its spread.

Ācārya Vṛddha Vāgbhaṭa's view:

निष्पीड्य चोद्धरेदंशमर्मसन्धिगतं तथा।

न जायते विषावेगो बीजनाशादिवाङ्कुरः। AS.Ut. 42.8

The *daṁśa* (bite) at *marma* (vital parts) and  
*sandhis* (joints) should not be subjected to  
*niṣpīḍana* (squeezing); if done at other sites, it  
arrests *viṣāvega* (impetuosity of poison); this is  
similar to destruction of *bija* (seed) thus that of  
*ānkura* (sprouts). *Niṣpīḍana* (squeezing out blood  
from the bite-site) at *marma* (vital part) results  
in *mṛtyu* (death) and at *sandhi* (joints) it results  
in *vikalāṅgatā* (distortion of body).

(5) **Cūṣaṇa (sucking out the poison from the bite-site)**

*Cūṣaṇa* is sucking out the poison from the site  
of bite. Immediately after snake bite, the site  
should be sucked out so as to minimize the  
spreading and effect of *viṣa* (poison).

As per Ācārya Suśruta -

प्रतिपूर्य मुखं वस्त्रैर्हितमाचूषणं भवेत्।

स दष्टव्योऽथवा सर्पो लोष्टो वाऽपि हि तत्क्षणम्॥

SS.K. 5.6

*Cūṣaṇa* (sucking) should be performed at the  
site of bite after filling the *mukha* (mouth) with  
*vastra* (cloth); the *sarpa* (snake) or some *loṣṭa*  
(clod) should be bitten immediately there after.

As per Ācārya Caraka :

निष्पीडयेद्भृशं दंशमुद्धरेन्मर्मवर्जं वा॥

तं दंशं वा चूषेन्मुखेन यवचूर्णापांशुपूर्णेन।

CS.Ci. 23.38-39



यवचूर्णेन पांशुना वा मुखपूरणं विषसंबन्धपरिहारार्थम् ।

Ck. on CS.Ci. 23.38-39

After tying of the *veṇikā* (tourniquet), the site of bite should be subjected to strong *niṣpīdana* (squeezing) and followed by *uddharāṇa* or *utkartana* (excision) of the site only if it is not a *marma* (vital part). The *viṣa* (poison) should be sucked out with the help of *mukha* (mouth) filled with *yava cūrṇa* (barley flour) or *pāṁśu* (dust) so as to avoid any direct contact with the oral mucosa.

#### (6) Agnikarma (cauterization)

Ācārya Suśruta says :

अथारिष्टां विमुच्याशु प्रच्छयित्वाऽङ्कितं तथा ॥

दह्यात्तत्र विषं स्कन्तं भूयो वेगाय कल्पते ।

SS.K. 5.50-51

After releasing of *ariṣṭā* (tourniquet), the site marked there by should be subjected to *pracchāna* (scarification) and *dahana-karma* (cauterization); this is done to avoid *vega* (flaring up) caused by *skanna* (arrested/ trapped) *viṣa* (poison).

अथ मण्डलिना दष्टं न कथंचन दाहयेत् । SS.K. 5.7

Bite by *maṇḍalin* snake should never be subjected to *dahana-karma* (cauterization) because the *viṣa* (poison) being predominant in *pitta*, often spreads out by cauterization.

Enlisting instruments required for *dahana-karma* (cauterization), Ācārya Vāgbhaṭa says-

शलाकाजाम्बवौष्ठानां क्षारेऽग्नौ च पृथक् त्रयम् ।

युञ्ज्यात् स्थूलाणुदीर्घाणाम् ॥ AH.Sū. 25.36

- *sthūla śalākā* (thick probe)
- *aṇu śalākā* (small probe)
- *dirgha śalākā* (long probe)
- *sthūla jāmbvauṣṭha* (thick instrument with tip of jambu fruit)
- *aṇu jāmbvauṣṭha* (small instrument with tip of jambu fruit)
- *dirgha jāmbvauṣṭha* (long instrument with tip of jambu fruit)

These are being used for *agni-karma* (cauterization).

In present times, electric cauterization has gained popularity.

#### (7) Pariṣeka (irrigation)

*Pariṣeka* is sprinkling or irrigation of cold water and alike; this is done to restrict the patient

from becoming unconscious or awake him from stage of unconsciousness.

As per Ācārya Caraka -

रक्तं हि विषाधानं वायुरिवाग्नेः प्रदेहसेकैस्तत् ।

शीतैः स्कन्दति तस्मिन् स्कन्ने व्यपयाति विषवेगः ॥

CS.Ci. 23.42

*Rakta* (blood) is being the *viśādhāna* (vehicle of poison) as the *vāyu* (wind) is of *agni* (fire); application of *pradeha* (ointment) and *seka* (irrigation), having *śīta* (cooling) properties, causes *skandana* (coagulation) of blood; this *skanna rakta* (coagulated blood) abates the *viṣavega* (dispersion of poison). *less intense*

#### (8) Avagāha (bathing with medicated water)

*Avagāhana* is bathing with medicated water; this includes bathing the patient with cold water, sponging with cold water, holding of ice-pack on the head etc.

As per Ācārya Caraka :

घृतमधुपयोऽम्बुपानावगाहसेकाश्च पित्तस्थे ॥

CS.Ci. 23.62

If the *viṣa* (poison) is located in the site of *pitta*, then patient should be subjected to *avagāhana* (bathing with medicated water) and *seka* (irrigation).

#### (9) Raktamokṣaṇa (blood-letting)

Explaining about the patients fit for *raktamokṣaṇa* (blood-letting), Ācārya Suśruta says -

विवर्णे कठिने शूने सरुजेऽङ्गे विषान्विते ।

तूर्णं विस्रवणं कार्यमुक्तेन विधिना ततः ॥ SS.K. 5.36

If the *viṣākta* (poisoned) site is *vivarna* (discoloured), *kathina* (hard), *śūna* (oedematous) and *saruj* (painful), *rakta-visravaṇa* (blood letting) should be performed immediately.

As per Ācārya Caraka :

प्रच्छनशृंगलौकाव्यधनैः स्राव्यं ततो रक्तम् ॥

रक्ते विषप्रदुष्टे दुष्येत् प्रकृतिस्ततस्त्यजेत् प्राणान् ।

तस्मात् प्रघर्षणैरसृगवर्तमानं प्रवर्त्य स्यात् ॥

CS.Ci. 23.39-40

*Raktamokṣaṇa* (blood-letting) should be performed by *pracchana* (scraping), *śrṅga* (application of horn), *jalaūkā* (application of leeches) or *vyadhana* (venesection).



The *viṣapraduṣṭa rakta* (blood afflicted by poison) causes vitiation of other tissue elements in the body and leads to death.

If the *rakta* (blood) fails to come out of the site, then *pragharsana* (rubbing therapy) should be deployed to cause *asṛk pravṛtti* (flowing out of blood).

त्रिकटुगृहधूमरजनीपञ्चलवणरोचनाः सवार्ताकाः ।

CS.Ci. 23.41

For this purpose, rubbing should be done using *trikaṭu* (*śuṅṭhī + marica + pippalī*), *gṛhadhūma*, *rajanī*, *pañcalavana* (*saindhava + sāmudra + sauvarcala + viḍ + audbhid*) and *vārtāka* (seeds).

#### (10) Vamana-karma (emesis)

*Vamana-karma* (emesis) proves to be a useful procedure in letting out unabsorbed poison from the body.

Explaining about the patients (of poisoning) fit for *vamana-karma* (emesis), *Ācārya Suśruta* says-

शीते शीतप्रसेकार्तं श्लैष्मिकं कफकृद्विषम् ।

वामयेद्वमनैस्तीक्ष्णैस्तथा मूर्च्छर्मदान्वितम् ॥ SS.K. 5.39

In the patient of *ślaiṣmika* constitution and in *śīta* (cold) season, suffering from *śīta* (cold), *praseka* (salivation), *mūrccā* (fainting) and *mada* (intoxication), *vamana-karma* (emesis) should be applied with *tīkṣṇa vāmaka* (drastic emetic) drugs.

**Vamana-karma (emesis) is indicated in**

(a) *Caturtha* (fourth) *vega* of *darvīkara sarpabite*

वान्तं चतुर्थे । SS.K. 5.21

(b) *Dvītiya* (second) *vega* of *maṇḍalin sarpabite*

द्वितीये पाययेत च । वामयित्वा ।

SS.K. 5.25

(c) *Caturtha* (fourth) *vega* of *maṇḍalin sarpabite*

(d) *Dvītiya* (second) *vega* of *rājimāna sarpabite*

वान्तं द्वितीये । SS.K. 5.29

(e) *Caturtha* (fourth) *vega* of *rājimāna sarpabite*

*Ācārya Carakasays:*

पीतं वमनैः सद्यो हरेद् विरेकैः । CS.Ci. 23.45

Prompt *vamana* (emesis) and *virecana* (purgation) help in immediate eradication of poison.

#### (11) Virecana-karma (purgation)

Explaining about the patients (of poisoning) fit for *virecana-karma* (purgation) and *basti-karma* (enema), *Ācārya Suśruta* says -

कोष्ठदाहरुजाध्मानमूत्रसंगरुगन्वितम् ।

विरेचयेच्छकृद्वायुसंगपित्तातुरं नरम् ॥

SS.K. 5.40

*Virecana* (purgation) is prescribed when patient (afflicted with poisoning) suffers from *koṣṭhadāha* (burning sensation in abdomen), *rujā* (pain), *ādhmāna* (tympa-nites), *mūtrasaṅga* (urinary retention) with *ruk* (dysuria), *śakṛtsaṅga* (retention of faeces), *vāyusaṅga* (obstructed flatus) and other symptoms of *pitta*.

पक्वाशयं गतम् ॥

विरेचनं ससर्पिष्कं तत्रोक्तं नीलिनीफलम् ।

दध्ना दूषीविषारिश्च पेयो वा मधुसंयुतः ॥

SS.K. 1.42-43

*Viṣa* (poison) residing in *pakvāśaya* (colon) should be eradicated by *virecana* (purgation) using *nīlinīphala* with *sarpi* (ghee) or *dūṣīviṣāri agada* should be prescribed with *dadhi* (curd) and *madhu* (honey).

#### (12) Upadhāna (application of medicine on the incision made over the scalp)

As per *Ācārya Caraka* :

विषदूषितकफमार्गः स्रोतःसंरोधरुद्धवायुस्तु ।

मृत इव श्वसेन्मर्त्यः स्यादसाध्यलिङ्गैर्विहीनश्च ॥

चर्मकषायाः कल्कं बिल्वसमं मूर्ध्नि काकपदमस्य ।

कृत्वा दद्यात्कटभीकटुकटफलप्रधमनं च ॥

छागं गव्यं माहिषं वा मांसं कौक्कुटमेव वा ।

दद्यात् काकपदे तस्मिंस्ततः संक्रमते विषम् ॥

CS.Ci. 23.65-67

Vitiation of *kapha-mārga* (channel for circulation of *kapha*) by *viṣa* (poison) causes *srotah-samirodha* (obstruction in bodily channels) and there by aggravation of *vāyu*; as a result, the patient breath as though he is about to die soon. If he



is devoid of *asādhiya liṅga* (signs of incurability), then incision resembling *kākapada* (crow's feet) should be made on his *mūrdhā* (scalp) and one *bilva* (in quantity) of *carmakaṣā kalka* (paste) applied; the patient should be subjected to *pradhānana nasya* (powdered errhines) using *kaṭabhī*, *kaṭu* (*trikaṭu*) and *kaṭphala*. Over the *kākapada* (incised part resembling crow's feet) *māmsa* (meat) of *chāga* (goat), *gavya* (cow), *māhiṣa* (buffalo) or *kukkuṭa* (cock) should be placed; this absorbs the *viṣa* (poison) from the body.

### (13) *Hṛdayāvaraṇa* (cardio-protective measures)

*Hṛdayāvaraṇa* is Cardio-protective measure adopted while managing the case of poisoning; *viṣa* (poison) reaching the *hṛdaya* (heart) and *mastiska* (brain) can prove to be fatal. This risk asks for protection of those organs. Consumption of *madhu* (honey) or *ghṛta* (ghee), *svarnaḡairika* (ochre) mixed in water, blood drained from steamed meat of crow or fresh blood of goat - all these measures were in practice in ancient times.

As per *Ācārya Caraka* :

आदौ हृदयं रक्ष्यं तस्यावरणं पिबेद्यथालाभम् ।  
मधुसर्पिर्मज्जपयोगैरिकमथ गोमयरसं वा ॥  
इक्षुं सुपक्वमथवा काकं निष्पीड्य तद्रसं वरणम् ।  
छागादीनां वाऽसृग्भस्म मृदं वा पिबेदाशु ॥

CS.Ci. 23.46-47

The *hṛdaya* (heart), right from beginning, should be protected from ill effect of *viṣa* (poison) by all means. *Madhu* (honey), *sarpi* (ghee), *majjā* (bone marrow), *payah* (milk), *gairika* (ochre), *gomaya-rasa* (juice of cow-dung), *supakva iksurasa* (well boiled sugarcane juice), *rasa* (juice) squeezed out of the *māmsa* (meat) of *kāka* (crow), *asṛk* (blood) of *chāga* (goat) etc., *bhasma* (ashes) or *mṛda* (mud) diluted in water - these can be prescribed.

### (14) *Añjanakarma* (application of collyrium)

*Ācārya Caraka* quotes - if there is *akṣyuparoaha* (obstruction in vision) in patient of poisoning, then *añjana* (collyrium) prepared of *devadāru*, *śunthī*, *pippalī*, *marica*, *haridrā*, *karavīra*, *karaṇja*,

*nimba* and *surasa* by triturating with *bastamūtra* (goat's urine) should be applied over the eyes; thus said -

अञ्जनमक्षुपरोधे कर्तव्यं बस्तमूत्रपिष्टैस्तु ।  
दारुव्योषहरिद्राकरवीरकरञ्जनिम्बसुरसैस्तु ॥

CS.Ci. 23.69

If the *viṣa* (poison) afflict the eyes, then application of *añjana* (collyrium) prepared of *pippalī*, *marica*, *kṣāra*, *vacā*, *saindhava* and *śigru* triturated with *pitta* (bile) of *rohita* fish; is helpful thus said -

पिप्पलीमरिचक्षारवचासैन्धवशिगुकाः ।  
पिष्टा रोहितपित्तेन घन्त्यक्षिगतमञ्जनात् ॥

CS.Ci. 23.183

*Ācārya Caraka* has described few more formulations to be used as collyrium; these are

- *Gandhahastī agada* → CS.Ci. 23.70-76
- *Māmsīkuṅkumādi yoga* → CS.Ci. 23.190-191
- *Sita* (white) *marica* triturated with *svarasa* (juice) of *śirīṣapuṣpa* → CS.Ci. 23.193-194
- *Vacādi paramo'gada* → CS.Ci. 23.212-214

Citing patients fit for *añjanakarma* (application of collyrium) *Ācārya Suśruta* quotes -

शूनाक्षिकूटं निद्रार्तं विवर्णाविललोचनम् ।  
विवर्णं चापि पश्यन्तमञ्जनैः समुपाचरेत् ॥ SS.K. 5.41

The patient should be treated with *añjana* (collyrium) if he has *śūna akṣikūṭa* (swelling on orbital margins), excessive *nidrā* (sleep), *vivarṇa* (discoloured) and *āvila* (turbid) *locana* (eyes) and seeing *vivarṇa* (varied colours).

### (15) *Nasya karma* (nasal errhines)

As per *Ācārya Caraka* :

काकाण्डशिरीषाभ्यां स्वरसेनाश्च्योतनाञ्जने नस्यम् ।  
स्यात्पञ्चमे ॥

CS.Ci. 23.49

During the fifth stage of poisoning, the patient should be subjected to *nasya karma* (nasal errhines) with juice of *kākāṇḍa* and *śirīṣa*.

*Nasya karma* (errhines) are also prescribed in case of suspected *udbandhana* (hanging), *viṣa* (poisoning) and *jala-mṛta* (drowning); *Ācārya Caraka* quotes -

उद्बन्धविषजलमृते लेपौपधिनस्यपानानि ॥

CS.Ci. 23.53



*Nasya karma* (errhines) using *māmsī*, *kuṅkuma*, *patra*, *tvak*, *rajanī*, *nata*, *candana*, *manaḥśilā*, *vyāghra* and *surasā* paste is prescribed in all kinds of *viṣa* (poison) and *śoṭha* (oedema); *Ācārya Caraka* quotes -

मांसीकुंकुमपत्रत्वग्रजनीनतचन्दनैः ।  
मनःशिलाव्याघ्रनखसुरसैरम्बुपेपितैः ॥  
पाननस्याञ्जनालेपाः सर्वशोथविषापहाः ।

CS.Ci. 23.190-191

Citing about the patients fit for *nasya karma* (errhines), *Ācārya Suśruta* says -

शिरोरुग्गौरवालस्यहनुस्तम्भगलग्रहे ।  
शिरो विरेचयेत् क्षिप्रं मन्यास्तम्भे च दारुणे ॥

SS.K. 5.42

*Śirovirecana* (head evacuation errhines) is prescribed in the cases of *śiroruk* (headache), *śirogaurava* (heaviness in head), *ālasya* (lassitude), *hanustambha* (lock jaw), *galagraha* (obstruction in throat) and severe *manyāstambha* (torticollis).  
*Stiffness of neck*

#### (16) *Dhūmapāna* (smoking therapy)

*Ācārya Caraka* advises *dhūmapāna* (smoking therapy) for treating cases of *viṣa* (poisoning); for this purpose he prescribes - *Mṛtasañjivana agada* (CS.Ci. 23.54-60).

*Ācārya Caraka* says *dhūmavarti* (smoking stick) made of *brhatī*, *kaṅṭakārī* and *patra* (leaves) of *ādḥakī* pacifies *hikkā* (hiccough) caused by *viṣa* (poisoning); he quotes -

बृहतीद्वयाढकीपत्रधूमवर्तिस्तु हिककाघ्नी ॥ CS.Ci. 23.97

#### (17) *Leha-prāsana* (linctus drugs)

*Ācārya Caraka* prescribes *lehana* (linctus) made using *kolāsthi*, *añjana*, *lājā*, *utpala*, *madhu* and *ghṛta* for *vamana* (vomiting) due to *viṣa* (poison); he quotes -

लेहः कोलास्थ्यञ्जनलाजोत्पलमधुघृतैर्वम्याम् ।

CS.Ci. 23.97

*Ācārya Suśruta* advises *lehana* (linctus drugs) in case of bite by *lālana* kind of *mūṣika* (rat); he quotes -

लालास्रावो लालनेन हिकका छर्दिश्च जायते ॥

तण्डुलीयककल्कं तु लिह्यात्तत्र समाक्षिकम् ।

SS.K. 7.10-11

Bite by *lālana* kind of *mūṣika* (rat) is being treated by licking paste of *tandulīyaka*.

#### (18) *Auśadha-sevana* (anti-toxic drugs or using as an amulet)

List of commonly prescribed formulations:

- |                             |                                |
|-----------------------------|--------------------------------|
| • <i>Ajita agada</i>        | • <i>Bālasūrya agada</i>       |
| • <i>Ajeya ghṛta</i>        | • <i>Brahma agada</i>          |
| • <i>Amṛta ghṛta</i>        | • <i>Mahā agada</i>            |
| • <i>Amṛta sarpi</i>        | • <i>Mahāgandhahasti agada</i> |
| • <i>Asabha agada</i>       | • <i>Mahāsugandhi agada</i>    |
| • <i>Auśanas agada</i>      | • <i>Māmsyādi yoga</i>         |
| • <i>Kalyāṇaka sarpi</i>    | • <i>Māheśvara agada</i>       |
| • <i>Kakāṇḍādi yoga</i>     | • <i>Mṛtasañjivana agada</i>   |
| • <i>Kṣāragada</i>          | • <i>Yāpanākhyā agada</i>      |
| • <i>Gandhahasti agada</i>  | • <i>Vamśatvagādi agada</i>    |
| • <i>Candanādi yoga</i>     | • <i>Śiva agada</i>            |
| • <i>Tārksya agada</i>      | • <i>Sañjivana agada</i>       |
| • <i>Daśāṅga agada</i>      | • <i>Sugandhākhyā agada</i>    |
| • <i>Dūṣivīṣari agada</i>   | • <i>Surasādi agada</i>        |
| • <i>Nāgadantyādi ghṛta</i> | • <i>Sūryodaya agada</i>       |
| • <i>Pañcaśirīṣa agada</i>  | • <i>Hingvādi yoga</i>         |
| • <i>Prājāpatya agada</i>   |                                |

*Ācārya Suśruta* cautions us against irrational usage of *agadas* (anti-poisonous formula-tions); he quotes :

अगदानां हि संयोगो विषजुष्टस्य युज्यते ।

निर्विषे मानवे युक्तोऽगदः संपद्यतेऽसुखम् ॥

तस्मात् सर्वप्रयत्नेन ज्ञातव्यो विषनिश्चयः ।

अज्ञात्वा विषसद्भावं भिषग्व्यापादयेन्नरम् ॥

SS.K. 8.77-78

The use of *agadas* (anti-poisonous formula-tions) is prudent only when given to a *viṣajūṣṭa* (poisoned individual); if used, in *nirviṣa* (poison-free individual), it may invite troubles (or to say complications). Hence, with all *prayatnas* (efforts), *viṣa* (poisoning) should be diagnosed as in absence of *viṣa* (poison) the *bhiṣak* (physician) might slay the patient.

#### (19) *Pradhamana* (blowing of drugs)

*Pradhamana* is blowing of powdered drugs into nostrils; *Ācārya Caraka* prescribes following formulation -

कुटजस्य फलं पिष्टं तगरं जालमालिनी ।

तिक्तेक्ष्वाकुश्च योगोऽयं पानप्रधमनादिभिः ॥



वृश्चिकोन्दुरुलूतानां सर्पाणां च विषं हरेत्।  
समानो ह्यमृतेनायं गराजीर्णं च नाशयेत्॥

CS.Ci. 23.206-207

Paste of *kuṭaja phala*, *tagara*, *jāla-mālinī* (*devadālī*) and *tiktēkṣvāku* should be prescribed for *pradhamana* (blowing into nostrils) in case of poisoning due to *vṛścika* (scorpion), *unduru* (rats), *lūtā* (spiders) and *sarpa* (snakes). This prescription is like an *amṛta* (ambrosia) and it also cures *garājirṇa* (indigestion of artificial poisoning).

#### (20) *Pratisāraṇa* or *pragharṣaṇa* (scrubbing of drugs)

*Ācārya Caraka* prescribes following formula-tion for *pratisāraṇa* or *pragharṣaṇa* (scrubbing of drugs) -

त्रिकदुग्धधूमरजनीपञ्चलवणरोचनाः सवार्ताकाः।

घर्षणम्॥

CS.Ci. 23.41

i.e. *trikaṭu*, *gṛhadhūma*, *rajanī*, *pañcalavaṇa*, *rocana* and *vārtāka* seeds are used for *pratisāraṇa* or *pragharṣaṇa* (scrubbing of drugs).

#### (21) *Prativiṣa* (usage of poisons to counteract effect original poison)

*Prativiṣa* is an antidote.

*Ācārya Caraka* says :

तस्माद्दृष्टाविषं मौलं हन्ति मौलं च दंष्ट्रजम्॥

CS.Ci. 23.17

विषपानं दृष्टानां विषपीते दंशनं चान्ते॥ CS.Ci. 23.50  
The *jāngama-viṣa* (animal poison) cures the poisoning caused by *sthāvāra viṣa* (poison of immobile origin/ vegetable poison) and vice-versa.

#### Viṣaghna mahākaṣāya

हरिद्रामञ्जिष्ठासुवहासूक्ष्मैलापालिन्दी चन्दनकतक-  
शिरीषसिन्धुवारश्लेष्मातका इति दशेमानि विषघ्नानि  
भवन्ति। CS.Sū. 4.11 (16)

- |                    |                     |
|--------------------|---------------------|
| ◆ <i>haridrā</i>   | ◆ <i>candana</i>    |
| ◆ <i>mañjiṣṭhā</i> | ◆ <i>kataka</i>     |
| ◆ <i>suvahā</i>    | ◆ <i>śirīṣa</i>     |
| ◆ <i>sūkṣmailā</i> | ◆ <i>sindhuvāra</i> |
| ◆ <i>pālindī</i>   | ◆ <i>śleṣmātaka</i> |

#### (22) *Sañjñāsthāpana* (drugs for restoration of consciousness)

It is also known as *sañjñāyāpana*. While managing case of poisoning it is imperative to

maintain the conscious of patient. *Ācārya Suśruta* explains this in detail -

नष्टसंज्ञं विवृत्ताक्षं भग्नग्रीवं विरेचनैः।  
चूर्णैः प्रधमनैस्तीक्ष्णैर्विषार्तं समुपाचरेत्॥  
ताडयेच्च सिराः क्षिप्रं तस्य शाखाललाटजाः।  
तास्वप्रसिच्यमानासु मूर्ध्नि शस्त्रेण शस्त्रवित्॥  
कुर्यात् काकपदाकारं व्रणमेवं स्रवन्ति ताः।  
सरक्तं चर्म मांसं वा निक्षिपेच्चास्य मूर्धनि॥  
चर्मवृक्षकषायं वा कल्कं वा कुशलो भिषक्।  
वादयेच्चागदैर्लिप्त्वा दुन्दुभीस्तस्य पार्श्वयोः॥  
लब्धसंज्ञं पुनश्चैनमूर्ध्वं चाधश्च शोधयेत्।  
निःशेषं निहरेच्चैवं विषं परमदुर्जयम्॥  
अल्पमप्यवशिष्टं हि भूयो वेगाय कल्पते।  
कुर्याद्वा सादवैवर्ण्यज्वरकासशिरोरुजः॥  
शोफशोषप्रतिश्यायतिमिरारुचिपीनसान्।

तेषु चापि यथादोषं प्रतिकर्म प्रयोजयेत्॥ SS.K. 5.43-49

If *viṣārta* (patient of poisoning) exhibits loss of *sañjñā* (consciousness), his *akṣa* (eyes) are *vivṛtta* (everted) and his *grīvā* (neck) is hanging down as if *bhagna* (broken) - then he should be subjected to *śīrovirecana* (purgative errhines) using *tikṣṇa* (sharp) *pradhamana cūrṇas* (blowing powders).

The *sirās* (veins) of *sākhā* (extremities) and *lalāṭa* (forehead) should be struck immediately for blood-letting; if it fails a *kākapadākāra vṛṇa* (incision resembling crow's feet) should be made on the *mūrdhā* (scalp) using *śastra* (sharp instrument) by a *Śastravit* (skilled surgeon); *sarakta carma* (skin with blood) or *sarakta māṁsa* (flesh with blood) should be placed on the incised *mūrdhā* (scalp); *kaṣāya* (decoction) or *kalka* (paste) of *carmavrkṣa* may also be used by the *kuśala bhiṣak* (expert physician) in the similar manner.

Besides, *agada-lipta dundubhi* (trumpets pasted with anti-poisonous drugs) should be played on his *pārśva* (sides).

When the patient gains *sañjñā* (conscious-ness), he should be subjected to *ūrdhva śodhana* (emesis) and *adhah śodhana* (purgation); in this way the poison, very challenging to overcome, should be abolished completely. If it remains



even in minute quantity, it may again create a *vega* (impulse) or may produce *sāda* (malaise), *vaivarnya* (discolouration), *jvara* (fever), *kāsa* (cough), *śīrorujā* (headache), *śopha* (oedema), *śoṣa* (wasting), *pratiśyāya* (rhinitis), *timira* (trachoma), *aruci* (anorexia) and *pīnasa* (rhinosinusitis). These should be treated as per the *doṣas* and *upadravas* (complications) of poisoning should be treated with respective measures.

Ācārya Caraka describes a group of drugs named - *Sañjñāsthāpana mahākaṣāya* - in the fourth chapter of *Sūtrasthāna* of his classic; he quotes -

हिङ्गुकैट्यारिमेदावचाचोरकवयस्थागोलोमी जटिलापलं-  
कषाशोकरोहिण्य इति दशेमानि संज्ञास्थापनानि भवन्ति ।

CS.Sū. 4.18 (48)

- |                   |                      |
|-------------------|----------------------|
| ◆ <i>Hiṅgu</i>    | ◆ <i>Vayasthā</i>    |
| ◆ <i>Kaiṭarya</i> | ◆ <i>Golomī</i>      |
| ◆ <i>Arimeda</i>  | ◆ <i>Jaṭilā</i>      |
| ◆ <i>Vacā</i>     | ◆ <i>Palaṅkaṣā</i>   |
| ◆ <i>Coraka</i>   | ◆ <i>Aśokarohiṇī</i> |

- these ten drugs help in restoration of *Sañjñā* (consciousness).

While defining '*sañjñāsthāpana*' Ācārya Cakrapāṇi quotes -

संज्ञां ज्ञानं च स्थापयतीति संज्ञास्थापनम् ।

Ck. on CS.Sū. 4.8

*Sañjñāsthāpana* is a category drugs that restore consciousness.

#### Summary of *Sañjñāsthāpana* measures

- *Śīrovirecana* (purgative errhines) using *tikṣṇa* (sharp) *pradhamaṇa cūrṇas* (blowing powders)
- *Sirāvedha* (veinsection) of *śākhā* (extremities) and *lalāṭa* (forehead) vessels
- *Kākapadākāra vraṇa* (incision resembling crow's feet) on the *mūrdhā* (scalp) using *śastra* (sharp instrument)
- Placing of *sarakta carma* (skin with blood) or *sarakta māṁsa* (flesh with blood) on the incised *mūrdhā* (scalp)
- *Kaṣāya* (decoction) or *kalka* (paste) of *carmavrkṣa*
- Playing *agada-lipta dundubhi* (trumpets pasted with anti-poisonous drugs)
- On gaining *sañjñā* (consciousness) - *ūrdhva śodhana* (emesis) and *adhah śodhana* (purgation)
- Use of *sañjñāsthāpana mahākaṣāya*

#### (23) *Lepa* (anointing)

Ācārya Caraka says -

घर्षणमतिप्रवृत्ते घटादिभिः शीतलैर्लेपः ॥ CS.Ci. 23.41  
If, due to *gharṣaṇa* (rubbing), there is *atipraortti* (excess of bleeding), then *śītala lepa* (cooling paste) of *vaṭa* etc. should be applied externally.

*Bāṣpa* (vapours) emitting from *annapāna* (poisoned food articles) cause *hrtpīḍā* (cardiac pain) and other illnesses; this is treated using *lepa* (anointment) of *śirīṣa*, *rajanī* and *candana*; only *candana* is applied over the *hrdaya* (cardiac region); he quotes -

कुर्याच्चिरीषरजनीचन्दनैश्च प्रलेपनम् ।

हृदि चन्दनलेपस्तु तथा सुखमवाप्नुयात् ॥ SS.K.1.36

#### (24) *Mrta-sanjivana* (measures for revival of life)

*Mrta-sanjivana* (measures for revival of life) - an ancient practice - had potential for reviving the life of those poisoned; this practice has lost its relevance in today's times.

Ācārya Cakrapāṇi says *mrta-sanjivana* (measures for revival of life) is a therapeutic module which revives an apparently dead individual; this is like a *sañjīvanakara bheṣaja* (reviving drug) having an *amṛta* (elixir) action; he quotes -

मृतसंजीवनं विषेण मृतस्यामृत इव संजीवनकरं भेषजम् ।

Ck. on CS.Ci. 23.35-37

There is a formulation named '*Mrta-sanjivana Agada*' in *Caraka Samhitā* (CS.Ci. 23.54-60); quoting its benefits Ācārya Caraka says -

सर्वविषघ्नो जयकृदद्विषमृतसंजीवनो ज्वरनिहन्ता ।

CS.Ci. 23.58

This formulation cures all kinds of *viṣa* (poison), makes a person victorious, revives a person who is apparently dead because of poisoning and also cures *jvara* (fever).

Ācārya Suśruta says:

संजीवनो नाम गतासुकल्पानेषोऽगदो जीवयतीह मर्त्यान् ।

SS.K. 5.75

'*Sanjivana agada*' revives consciousness in moribund person. (refer Appendix 1)



### Prophylactic management of poisoning - as per Ācārya Caraka

As per Ācārya Caraka :

वज्रं मरकतः सारः पिचुको विषमूषिका ।  
कर्कतनः सर्पमणिर्वैदूर्यं गजमौक्तिकम् ॥  
घास्यं गरमणिर्याश्च वरौषध्यो विषापहाः ।  
खगाश्च शारिकाक्रीडशिशिहंमर्शुकादयः ॥

CS.Ci. 23.252-253

Wearing of *vajra* (diamonds), *marakata* (emerald), *sāra*, *picuka*, *viśamūṣikā* (*viśamaṇi*), *karketana* (*padmarāga*), *sarpamaṇi*, *vaidūrya* (lapis lazuli), *gajamuktā*, *garamaṇi* and *varauśadha* (amulets with herbs) provide amnesty from *viṣa* (poison); domesticating of *sārikā* (myna), *krauñca* (crane), *śikhi* (peacock), *haṁsa* (swan) and *śuka* (parrots) is also useful.

### Management of Poisoning

In modern toxicology, management of poisoning has following six steps -

- Resuscitation,
- Removal of unabsorbed poison,
- Use of antidotes,
- Elimination of absorbed poison,
- Treatment of symptoms and other complications and
- Maintenance of general health of the patient.

#### 1. Resuscitation

Steps involved in resuscitation

- Revival
- Ventilation and
- Treatment of hypotension

#### Revival/ Resuscitation

- The priority for physician, attending a case of poisoning, is to revive or resuscitate the patient. As a physician one should be vigilant towards functioning of various organs or systems of the body.

- Maintenance of cardiac activity and blood circulation is extremely important.
- Artificial dentures of the patient should be removed.
- Oral and oro-pharyngeal secretions should be promptly removed through suction.
- In case of unconscious patient and when his cough reflexes have ceased a cuffed endotracheal tube should be inserted.
- If signs of respiratory failure are evident then artificial respiration should be resorted to. In case of low respiratory rate naloxone should be used.

#### Ventilation

- The crowd around the patient should be dispersed and appropriate ventilation of the room should be done by keeping the windows etc. open.
- The cloths on the patient's body should be loosened.
- Arterial blood gas should be analysed. If Pa CO<sub>2</sub> is more than 65 k Pa then artificial or supportive respiratory measures should be adopted.

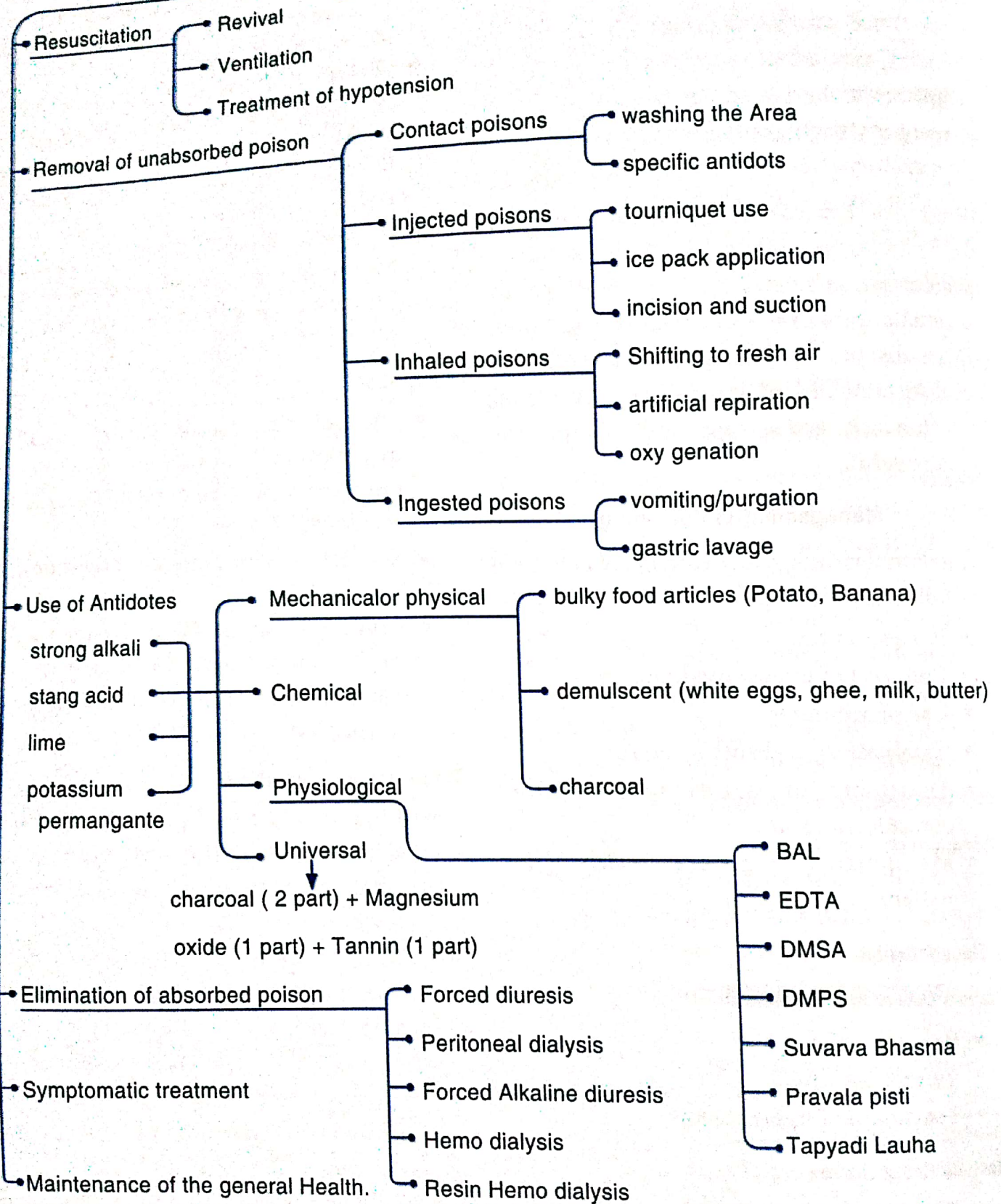
#### Treatment of hypotension

- If the systolic blood pressure falls below 90 mmHg then the physician should immediately arrange for artificial respiratory measures.
- Patient should be positioned in head-low by raising the height of bed on the leg side by 15 cms.
- If poisoning is severe then central venous line should be secured and dextran or purified protein should be infused intravenously.
- To enhance renal blood flow, if required, dopamine should be used.
- Along with revival or resuscitation of the patient, the traces or remains of poisons in the body should also be attended to.



## Management of poisoning

### Poisoning management



## 2. Removal of unabsorbed poison

The rate of absorption for poison depends upon the nature and route or mode of administration. Certain time-frame is required for the poison to get absorbed in the body; therefore, all efforts should be done to remove the unabsorbed poison from the body. The measures, for this, depend on the route or mode of poison administration.



**Contact poisons**

- Washing the area/site with clean water and/ or soap and water
- Use of specific antidotes (if the nature of poison is known).

**Inhaled poisons**

- Shifting the patient to fresh air
- Decongestion and sufficient ventilation of the place where the patient is shifted
- Artificial respiration and oxygenation.

**Injected poisons**

- Application of tourniquet near the site of injection
- Application of ice packs
- Incision and suction

**Ingested poisons**

- Induction of vomiting or purgation (as required)
- Gastric lavage (stomach wash)

**Induction of vomiting****Indications**

- During the initial few hours (5 - 6 hours) of ingested poison, except when the poison is corrosive in nature.

**Contra-indications**

- Corrosive poisons
- Unconscious and comatose patients
- Children
- Pregnancy etc.

**Commonly used emetic drugs/ agents**

- Ipecac powder (1-2 gm) in one glass water
- Ipecac syrup (30 ml)
- Zinc sulphate (1-2 gm) in one glass water
- Ammonium carbonate (1-2 gm) in one glass water
- Apomorphine hydrochloride (6 mg s.c.) with Naloxone (0.4 mg i.m. / i.v.) (for counteracting the respiratory depression caused by Apomorphine)

**Methods**

If considerable time has not lapsed, in case of ingested poisoning, then induction of vomiting proves more productive than the gastric lavage/ stomach wash; except in case of corrosive poisons. Some poisons, by nature, are emetic and a large portion of them are thrown out of the body through vomiting. Even in such case, induction of further vomiting is advisable.

If the patient is conscious, supportive and the poison he has ingested is not contradictory to vomiting then manual stimulation of oropharyngeal area or using emetics should be immediately resorted to.

**Gastric lavage (stomach wash)****Gastric lavage tube**

- Synonym - Boa's tube/ Ewald's tube
- It is a rubber tube; the length of the tube is 1 to 1.5 m. and its breadth is 12.7 mm.
- Parts -
  - ◆ Filter funnel
  - ◆ Rubber tube
  - ◆ Suction bulb
  - ◆ Mouth gag
  - ◆ Lower end of rubber tube (marked at 40, 50 and 60 cm.)

**Indications**

- Ingested poisoning

**Contra-indications**

- Corrosive poisoning (except carbolic acid)
- Convulsions
- Comatose patient
- Upper alimentary tract illness/ pathology etc.

**Method**

- Gastric lavage is washing away of upper part of gastric tract, especially stomach, for any ingested poison.
- It is done using a stomach tube.
- It is a life-saving measure if performed within 4 to 6 hours of ingestion of poison. After this the poison is absorbed in the



system and the procedure will prove ineffective.

- Even if the patient has been vomiting out the contents still gastric lavage should be performed to wash out the traces of poison that may be present in the gastric cavity.
- Therefore, gastric lavage or stomach wash proves to be a mandatory measure in treating ingested poison except when contra-indicated.

#### Procedure

- Patient should be lying on his left side or prone with his head hanging over the edge of the bed and face down supported by a subordinate; this is done so that the mouth is at a lower level than the larynx. By this positioning the secretions of respiratory tract can easily come out and it also prevents aspiration of any contents into the respiratory pathway.
- The end of the rubber tube is lubricated with liquid paraffin, glycerine, milk or any other slimy material and inserted into the oral cavity.
- If required a tongue depressor can be used to lower the tongue so as to facilitate insertion of the rubber tube.
- The tube should be inserted till the mark on the tube. Once reached the mark, it is assumed that the tip of the tube is inside the stomach.
- To confirm the position of tip of the tube, a small amount of air is pushed through the tube and a stethoscope is placed over the stomach area to hear bubble sounds.
- Absence of any cough reflex also confirms the position of the tube in the abdominal cavity.
- The tube should be inserted with utmost care and without applying any considerable force; if force is applied, the chances are high that the esophageal, respiratory passage or stomach wall might get injured.
- About half liter of warm water should be passed through the funnel held high

up above the patient's head. Due to gravitational force, the warm water will immediately pass through the tube.

- After this the funnel should be lowered (below the gastric level) and whatever is in the stomach will come out itself.
- The contents of first wash should be preserved and sent for biochemical analysis.
- Large amount of warm water, during the first wash, should be avoided as this might push the stomach contents into the duodenal area.
- This procedure should be repeated many times and continued till the color of solution (inserted through the funnel) and the content (aspirated out through the tube) are same.
- Nearly ten liters of water might be required for gastric lavage.
- Some amount of solution should be allowed to remain in the stomach cavity. By this trace of poisons, if any left behind, will be neutralized.
- Solutions used for gastric lavage include -
  - ♦ Potassium permanganate
  - ♦ Magnesium sulphate
  - ♦ Sodium sulphate
  - ♦ Sodium bicarbonate,
  - ♦ Activated charcoal,
  - ♦ Fuller's earth etc.
- These are selected on the basis of nature and dosage of poisons.
- After appropriate gastric lavage, the tube should be removed carefully.

#### Gastric lavage in infants and children

- For infants and children, Ryle's tube or a number 8 to 12 French catheter can be used for gastric lavage.
- About 25 cm length is sufficient to reach the stomach cavity and this length should be marked before-hand by using an adhesive tape.
- The tip of the tube should be lubricated and inserted through nostrils or oral cavity.



- If the child coughs, it suggests that the tube in entering the respiratory passage; in such the tube should be slightly retracted and again pushed in the esophageal tube.
- The outer end of the tube should be connected to a syringe (20 to 50 ml) and the gastric contents be aspirated out.
- Later solutions (mixed with antidotes etc.) should be pushed through the tube and aspirated out.
- One has to be very careful when performing gastric lavage in children.

- ♦ DMSA (Meso-2, 3-dimercaptosuccinic acid)
- ♦ DMPS (2,3 - dimercaptopropane 1-sulfonate)
- ♦ Suvarṇa bhasma
- ♦ Pravāla piṣṭi
- ♦ Tāpyādi lauha
- **Universal antidotes**
  - ♦ Charcoal (2 parts) + Magnesium oxide (1 part) + Tannin (1 part)

**Household antidotes**

**3. Use of antidotes**

**Definition**

Antidotes are the substances that counteract or neutralize the effects of poisons.

**Types of antidotes**

- Mechanical or physical antidotes
- Chemical antidotes
- Physiological antidotes
- Universal antidotes
- **Mechanical or physical antidotes -**
  - ♦ Bulky food articles (e.g. potato, banana, rice etc.) - These hinder the ingested poisons (e.g. glass powder, dust of diamond etc.) by blocking their action on the gastric mucosa.
  - ♦ Demulscents (white of egg, ghee, milk, butter etc.) - These coat the gastric mucosa and thus hinder the absorption of poisons.
  - ♦ Activated charcoal - This absorbs the poisons and thus makes them ineffective.
- **Chemical antidotes**
  - ♦ Strong alkalis for mild acids
  - ♦ Strong acids for mild alkalis
  - ♦ Lime for oxalic acid
  - ♦ Potassium permanganate for various poisons
- **Physiological antidotes**
  - ♦ BAL (British anti-lewisite/ Dimercaprol)
  - ♦ EDTA (Ethylene diamine tetra acetic acid)
  - ♦ Cuprimine (Penicillamine)

**Table No 6.2**

S.No.	Antidote	Poison
1.	Milk (cow's milk), ghee and egg white	Mercury, arsenic and other metallic poisons
2.	Milk of magnesia or soap water	Acid poisoning
3.	Orange or lemon juice with vinegar (1 part vinegar and 3 parts water)	Alkali poisoning
4.	Strong tea	Alkaline solutions or metal poisoning
5.	Starch	Iodine poisoning
6.	Flour or potato mash	As a substitute for activated charcoal

Āyurvedic classics have enlisted ten attributes for *godugdha* (cow's milk) which are contrary to ten attributes of *viṣa* (poison).

**4. Elimination of absorbed poison**

If more than six hours has passed from time of poisoning and above mentioned measures are not proving sufficient then it should be understood that large amount of poison has been absorbed in the blood system. This absorbed poison should be removed through diuresis or sudation. For this following measures should be adopted-

- **Forced diuresis** - This is used in poisoning due to aspiring or barbiturates.
- **Peritoneal dialysis** - This is used in poisoning due to methanol and ethylene glycol. In non-availability of dialysis, this method can be used in salicylate poisoning among children.



- **Forced alkaline diuresis** - This is used in poisoning due to pheno-barbitol and salicylate.
- **Hemodialysis** - For elimination of barbiturates, boric acid, bromides, glutethimide, methyl alcohol, salicylates etc. from the blood.
- **Resin hemodialysis** - Used in theophylline poisoning.

### 5. Treatment of Symptoms & other complications

Symptomatic treatment also plays a vital role in management of poisoning cases. In cases where the source of poisoning is not established the patient should be managed only the basis of symptoms. Therefore, the attending physician should be vigilant towards the symptoms manifested.

- For pain relief - Morphine or Pethidine
- For respiratory failure - Artificial respiration and oxygen therapy
- For fall in blood pressure - Cardio-stimulants
- For pyrexia - Antipyretic drugs
- For fall in temperature - Non-pharmacological measures like warm room, blankets etc.
- For convulsions - Barbiturates
- For dehydration - Fluids etc.

By infusion of fluids, the poison can be expelled through the urine. But the physician should be vigilant towards over-hydration of the patient. In case of unconscious patient, the total fluids infused should not be more than 1.5 liters.

Early stages of vomiting and diarrhea should not be stopped; these help in self-elimination of poisons from the body.

In case of continuous and persistent vomiting following medicines should be used - luminal atropine etc.

Constipation should be managed with purgatives; e.g. milk of magnesia etc. If required, enema can also be given.

Anuria should be managed quickly because large amount of poison can be expelled out

through urination. Distended bladder should be mildly pressed. Saline or glucose saline should be pushed intra-venously. Diuretics should be given. In case of emergency urethral catheterization should be done.

In case of hypotension, the patient should be given a head-low position. Stimulant drugs should be given.

Delirium, convulsions and insomnia should be managed with sedatives and sleep-inducing drugs such as - barbiturates, paraldehyde, chloral hydrate etc.

Severe convulsions should be managed with anesthetic agents such as chloroform etc.

Pulmonary edema should be treated using Morphine sulphate (1/6 or 1/4 grain) subcutaneously. If needed, O<sub>2</sub> inhalation can be given.

Edema of pleura and respiration passage should be managed with appropriate antibiotics.

Physician should watch-out for labored breathing or respiratory failure. These should be managed promptly.

Shock results in hypotension, coldness and sticky skin, raised pulse rate, fall in body temperature and discoloration of skin. It is an emergency condition and if patient cannot recover from this he will collapse and ultimately die. There can be numerous reasons for shock to set in.

If shock is due to anuria or oliguria caused by dehydration then blood-transfusion should be given. In non-availability of blood, blood-plasma or even simple glucose-saline should be infused.

Bradycardia or cardiac arrest should be managed appropriately.

To enhance peripheral circulation, adrenaline or nor-adrenaline should be given by drip method.

At times cessation of acute and fatal signs of poisoning results in manifestation of associated symptoms such as - hemiplegia, edema, renal edema etc. These should be managed accordingly.



In management of poisoning the recovery period is considered to be a stage of complications. During this period the physician should be extremely vigilant. The after-effect of antidotes, at times, can give rise to serious complications.

#### 6. Maintenance of general health of the patient

- During the course of management for poisoning, the general health of the patient should be maintained.
- Body temperature, functioning of various organs, strength and consciousness should be reassessed at regular intervals.

- After recovering from poisoning the patient should be counselled for optimistic attitude towards life and its incidences.
- Optimum nursing care, psychological support and medical management - all these are of equal importance in treating cases of poisoning.
- After recovery in suicidal poisoning cases the patient should be put to psychiatric counselling under the guidance of expert Psychiatrists; and the patient should be discharged only after the approval of Psychiatrist-in-charge.





## UPADRAVAS (SUPERVENING SYMPTOMS / COMPLICATIONS) OF VIṢA (POISONING) AND THEIR MANAGEMENT

### LEARNING OBJECTIVES

- Upadravas of viṣa - 4 (caraka) mada, murccha, viṣada, hṛdayadrava
- Vagbhata enumerates - 16 updravas

*Upadravas* (supervening symptoms or complication) of poisoning

(I) Ācārya Caraka says :

दोषस्थानप्रकृतीः प्राप्यान्यतमं ह्यदीरयति ॥ CS.Ci. 23.27  
Depending upon the *doṣa*, *sthāna* (location of bite) and *prakṛti* (constitution of the patient), *viṣa* (poison) produces several complications. Ācārya Caraka, in this context, has enumerated four *upadravas* of *viṣa*; these are:

विषवेगान्मदमूर्च्छांविषादहृदयद्रवाः प्रवर्तन्ते ।

शीतैर्निवर्तयेत्तान् वीज्यश्चालोमहर्षात् स्यात् ॥

CS.Ci. 23.43

As a result of the *viṣavega* (spreading of the poison), the patient suffers from *mada* (intoxication), *mūrccchā* (fainting), *viṣāda* (depression) and *hṛdayadrava* (tachycardia). Application of *sīta vidhi* (cooling therapies) alleviates such complications. The patient should be fanned till *lomaharṣa* (horripilation) takes place because of its cooling effect.

(II) Ācārya Vṛddha Vāgbhaṭa enumerates sixteen *upadravas* (supervening symptoms or complications) of *viṣa*; these are:

ज्वरकासवमिश्रासहिध्मा तृष्णाऽतिमूर्च्छनम् ।

विशोभेदोऽतिकाठिन्यमानाहो बस्तिमूर्च्छरुक् ॥

श्वयधुः पूतिदंशत्वं रक्तस्रावो विषानिलः ।

इति षोडश निर्दिष्टा विषातानामुपद्रवाः ।

गच्छन्त्युपेक्षिता नाशं यैर्जुष्टा विषरोगिणः ॥

AS.Ut. 47.2-3

- *jvara* (fever)
- *kāsa* (cough)
- *vami* (vomiting)
- *śvāsa* (dyspnoea/ asthma)
- *hidhmā* (hiccough)
- *atitrṣṇā* (excessive thirst)
- *mūrccchana* (fainting)
- *atisāra* (diarrhoea)
- *malāvarodha* (constipation)
- *ānāha* (tympanites)
- *bastiruk* (bladder colic)
- *mūrdharuk* (headache)
- *śvayathu* (oedema)
- *pūtidamśatva* (gangrene)
- *raktasrāva* (bleeding)
- *viṣānila* (*viṣa-vāta*)

If these *upadravas* (supervening symptoms) are left unattended then the patient might end up losing his life.

It seems that Ācārya Vṛddha Vāgbhaṭa has enumerated all the signs and symptoms encountered in poisoning under *upadravas* (complications of poisoning) whereas Ācārya Caraka remains selective and has enlisted only most important ones.

### Treatment of *upadravas* (supervening symptoms/ complications) of *viṣa* (poisoning)

Only *yogas* (formulations) from the classical texts are enlisted here. Modern management or formulations can be selected by the attending physician after ascertaining any undue drug interaction between the two systems of medicine.



### Treatment of *jvara* (fever)

As per Ācārya Vṛddha Vāgbhaṭa :

राजवृक्षफलोशीरकाशमर्यघनपद्मकात् ।

क्वाथः सशर्कराक्षौद्रो विषज्वरहरः परम् ॥ AS.Ut. 47.3

- For *lehana* (licking) → *drākṣā*, *śuṅṭhī*, *pippalī*, *ghṛta* and *madhu*.
- For *lehana* (licking) → *triphālā*, *mustā*, *ghṛta* and *madhu*.
- *Kaṣāya* (decoction) of *yaṣṭimadhu* added with *cūrṇa* (powder) of *pāṭhā*, *mañjiṣṭhā*, *añjana*, *haridrā*, *dāruharidrā* and *yaṣṭimadhu*.
- For consumption - *Hiṅgu*, *pippalī*, *kapittha*, *saindhava*, *miśrī* and *madhu*.

### Important formulations

- ◆ *Sitopalādi cūrṇa*
- ◆ *Godantī bhasma*
- ◆ *Pravālapīṣṭī*
- ◆ *Svarṇa bhasma*
- ◆ *Sūtaśekhara rasa*
- ◆ *Drākṣāsava* etc.

### Treatment of *vamana* (vomiting)

As per Ācārya Vṛddha Vāgbhaṭa :

विषवम्यां पिबेत् क्वाथं बिल्वमूलाद्रजोऽथवा ।

धात्रीपरुषकद्राक्षा मधुकं पयसा दुतम् ॥ AS.Ut. 47.11

- *Kaṣāya* (decoction) made from *bilvamūla* and added with powder of *marica* or powder of *bilvamūla*, *dhātrī*, *paruṣaka*, *drākṣā* and *madhuka*, should be taken along with *payah* (milk) for pacifying *vamana* (vomiting) due to poisoning.

वेल्लाग्राञ्जनसोशीरयष्ट्यैलाकणकेसरम् ।

लिहान्मरिचकुम्भीं वा घृतपुष्परसदुताम् ॥

AS.Ut. 47.12

- *Vellāgra*, *añjana*, *uśīra*, *yaṣṭī*, *elā*, *kaṇa*, *kesara*, *marica* and *kumbhī* should be consumed with *ghṛta* (ghee) and *pusparasa* (madhu-honey) for pacifying *vamana* (vomiting) due to poisoning.

क्षीरिवृक्षांकुरक्षौद्रसितास्तृड्वमथुच्छिदः ॥

AS.Ut. 47.13

- *Añkura* (leaf buds) of *kṣīri-vṛkṣas* (latex producing plants) along with *kṣaudra* (honey) and *sitā* (sugar) pacifies *trḍ* (thirst) and *vamathu* (vomiting) due to poisoning.

जीर्णशाल्योदनं क्षौद्रं क्षीरं चन्दनसाधितम् ।

शीताम्भोनुपिबेत् भुक्त्वा विषच्छर्दिमपोहति ॥

AS.Ut. 47.14

- Consuming *jirṇa śālyodana* (old boiled rice), *kṣaudra* (honey) and *ksīra* (milk) with *candana* followed by drinking *śitāmbu* (cold water) cures *viṣa-cchardi* (vomiting due to poisoning).

### Important formulations

- ◆ *Śukti bhasma*
- ◆ *Suvarṇamāksika bhasma*
- ◆ *Puṣparāga bhasma*
- ◆ *Kumudeśvara rasa*
- ◆ *Sūtaśekhara rasa*
- ◆ *Candrakalā rasa* etc.

### Treatment of *śvāsa* (asthma) etc.

As per Ācārya Vṛddha Vāgbhaṭa :

तैलगोविड्सक्षौद्रैर्लिह्यात् कृष्णाप्रियंगुके ॥

श्वासी क्षौद्रेण वा द्राक्षाशृंगीमागधिकासिताः ।

गुडनागरवैदेहीविजयामलकानि वा ॥ AS.Ut. 47.15-16

- *Śvāsa* (asthma) due to poisoning is treated by consuming
  - ◆ *kṛṣṇā*, *priyaṅgu*, *taila* (oil), *govīḍ* *rasa* (juice of cow dung) and *kṣaudra* (honey); or
  - ◆ *drākṣā*, *śṛṅgī*, *māgadrikā* and *sitā* (sugar) with *kṣaudra* (honey); or
  - ◆ *guḍa* (jaggery), *nāgara*, *vaidehī*, *vijayā* and *āmalaka* with *kṣaudra* (honey).

वैदेहिकारामठकं कपित्थरससैन्धवम् ।

ससितामाक्षिक लीढं श्वासकासज्वरापहम् ॥

AS.Ut. 47.8

- *Vaidehikā*, *rāmathaka*, *kapittha* *rasa*, *saindhava* added with *sitā* (sugar) and *māksika* (honey) pacifies *śvāsa* (dyspnoea / asthma), *kāsa* (cough) and *jvara* (fever).

### Important formulations

- *Svarṇa bhasma*
- *Abhraka bhasma*
- *Pannā bhasma*
- *Muktāpiṣṭī*
- *Lakṣmīvilāsa rasa*
- *Pravālapañcāmṛta rasa*
- *Drākṣāsava*



- Vāsāriṣṭa
- Vāsāvāleha etc.

### Treatment of hikkā (hiccough)

As per Ācārya Vṛddha Vāgbhaṭa :

हिष्मायां शंखकनककटुकास्वर्णगैरिकम् ।  
 चेल्लशुण्ठीकणोशीररजनीद्वितयानि वा ॥  
 लिह्याद्वा व्योषमृद्धीकां बीजपूरसेन वा ।  
 सक्षौद्रं बालकरजः क्वाथं वा सगुडं पिबेत् ॥  
 विश्वभेषजगायत्रीहरिदामरदारुजम् ।  
 दन्तीन्द्रवारुणीद्विपीकल्कं सौवीरकेण वा ॥

AS.Ut. 47.17-18

- *Hidhmā* (hiccough) is treated by consuming :
  - ◆ powdered *śankha*, *kanaka*, *kaṭukā* and *svarnagairika*; or
  - ◆ *vella*, *śunṭhī*, *kaṇā*, *uśīra*, *haridrā*, *dāruharidrā* and with *ksaudra* (honey); or
  - ◆ *vyoṣa* and *mṛdvīkā* with *bijapūrarasa*; or
  - ◆ powdered *vālaka* with *ksaudra* (honey) or
  - ◆ *kvātha* (decoction) of *viśvabheṣaja*, *gāyatrī*, *haridrā* and *amaradāru* added with *guḍa* (jaggery); or
  - ◆ paste of *dantī*, *indravāruṇī* and *dvīpī* along with *sauvīraka* (sour rice wash).

### Important formulations

- *Mayūracandrikā bhasma*
- *Sūtaśekhara rasa*
- *Vijayāpuṣpādyavāleha* etc.

### Treatment of tṛṣṇā (thirst) and mūrccchā (fainting)

As per Ācārya Vṛddha Vāgbhaṭa :

तृणमूर्च्छयोराशिरसो लेपसेका हिमा हिताः ।  
 अम्भोजनालकुसुमचन्दनोशीरमौक्तिकैः ।  
 वैहायससितातोयक्षीराज्येक्षुरसाप्लुतैः ॥  
 बीजनं तालवृन्तेन शीते सिकतिले स्थितिः ।

AS.Ut. 47.20-21

- Poisoning induced *tṛṣṇā* (thirst) and *mūrccchā* (fainting) is treated by applying *hima lepa* (cold paste) or *hima seka* (cold irrigation) of *ambhojanāla*, *kusuma*, *candana*, *uśīra*, *mauktika*, *vaiḥāyāsasitā toya* (rain water), *ksīra* (milk), *ājya* (ghee) and *iksurasa* (sugarcane juice) all over the body including head region.

कमलोत्पलकिञ्जल्कपटलावृतयारिषु ।

विषतृडाहमूर्च्छं सरसीष्ववगाहनम् ॥ AS.Ut. 47.22

- The patient should be fanned with *tālavṛnta* and should live in a *śīta* (cold) place that is devoid of *sikatā* (sand).

विषवेगसमुत्थायां तृष्णायां लाजतपणम् ।

शर्करादाडिमक्षौद्रसलिलाल्पलवितं पिबेत् ।

वटवतसजम्बवाप्रसेव्यतोयं च शीतलम् ॥ AS.Ut. 47.23

- *Avagāhana* (immersion) bath in *sarasi* (lake/ pond/ water body) where its water is covered with *kamala*, *utpala* and *kiñjalka pātala*; this pacifies *tṛṣṇā* (thirst), *dāha* (burning sensation) and *mūrccchā* (fainting) due to *viṣa* (poisoning).

### Important formulations

- *Rasādi cūrṇa*
- *Candanādi cūrṇa*
- *Candanādi vaṭī*
- *Kumudeśvara rasa*
- *Parpaṭādyariṣṭa*
- *Uśīrāsava* etc.

### Treatment of atisāra (diarrhoea)

As per Ācārya Vṛddha Vāgbhaṭa -

भूनिम्बमुस्तकटुकात्रायन्तीन्द्रयवान् समान् ।

द्वौ भागौ चित्रकादष्टौ कुटजाद्वारिणा पिबेत् ॥

विषातिसारोदावर्तकासश्वासज्वरापहम् ॥ AS.Ut. 47.24

- Equal quantities of *bhūnimba*, *musta*, *kaṭukā*, *trāyantī* and *indrayava* (thus making one part); two parts of *citraka* and eight parts of *kuṭaja* should be consumed with water to eradicate *viṣātisāra* (diarrhoea due to poisoning), *udāvarta* (misperistalsis), *kāsa* (cough), *śvāsa* (dyspnoea/ asthma) and *jvara* (fever).

लोध्रमोचरसाम्बष्ठघातकीस्तण्डुलाम्बुना ।

समाक्षिकाः पिबेत्तद्वनागरातिविषाभयाः ॥

सघातकीः सकुटजाः साञ्जनाः श्लक्ष्णचूर्णिताः ।

पाठनागरचूर्णं वा दध्ना युक्तं समाक्षिकम् ॥

AS.Ut. 47.25-26

- Finely powdered *lodhra*, *mocarasa*, *ambasthā* and *dhātakī* should be consumed with *tandulāmbu* (rice water); [or] of *nāgara*, *ativiṣā* and *abhayā* with *mākṣika* (honey);



or of *dhātakī*, *kuṭaja* and *añjana* with *mākṣika* (honey) or of *pāthā* and *nāgara* with *dadhi* (curd) and *mākṣika* (honey) for treating *viṣātisāra* (diarrhoea due to poisoning).

#### Important formulations

- *Kāmadudhā rasa*
- *Sūtaśekhara rasa*
- *Pravālapañcāmrta*
- *Kuṭajaghana vaṭī*
- *Kuṭjāvāleha*
- *Kuṭajāriṣṭa etc.*

Treatment of *bastivedanā* (bladder colic), *udāvarta* (flatulence) and *ānāha* (constipation)

As per Ācārya Vṛddha Vāgbhaṭa :

बस्तिरुग्वर्तनाहेषु फलवर्ति प्रयोजयेत् ।  
सारग्वधां सत्रिवृतां सोपकुल्यां हरीतकीम् ।  
पिबेत् घृतेन सक्षौद्रां बस्तिशूलादिनाशिनीम् ॥

AS.Ut. 47.27

- In *basti-ruk* (bladder colic), *vartana* (upward movement of gases) and *ānāha* (flatulence) *phalavarti* (suppositories) is prescribed; *āragvadhā*, *trivṛt*, *upakulyā* and *haritakī* should be consumed with *ghṛta* (ghee) and *kṣaudra* (honey) for relieving *bastiśūla* (bladder colic) etc.

गृहधूमनतश्यामा नीलिनी तण्डुलीयकैः ।  
सिद्धं वाज्यं तथाऽसिद्धं वराक्वाथत्रिवृद्युतम् ॥

AS.Ut. 47.28

- *Ājya* (ghee) processed with *grha-dhūma*, *nata*, *śyāmā*, *nīlinī* and *tanḍulīyaka* or *varā kvātha* (decoction of *triphalā*) added with *trivṛt* and *ājya* (ghee) can also be partaken.

#### Important formulations

- *Triphalā cūrṇa*
- *Pañcasakāra cūrṇa*
- *Āragvadhādi kvātha*
- *Śaṅkha vaṭī*
- *Tāpyādi lauha*
- *Abhayāriṣṭa etc.*

Treatment of *śirovedanā* (headache)

As per Ācārya Vṛddha Vāgbhaṭa :

काकोली क्षीरिवृद्धाघ्नत्वग्द्राक्षायष्ट्याह्वशर्कराः ।

नस्यं विषशिरोरुघ्नं संयोज्यं शीतवारिणा ॥ AS.Ut. 47.29

- *Nasya* (errhines) made from *kākolī*, *tvak* (bark) of *kṣīrivṛkṣa*, *drākṣā*, *yaṣṭyāhva* and *śarkarā* with *śitavāri* (cold water) is useful in treating *viṣaja śiroruk* (headache due to poisoning).

#### Important formulations

- *Godantī bhasma*
- *Kāmadudhā rasa*
- *Sūtaśekhara rasa*
- *Śūlavajriṇī rasa*
- *Pravālapīṣṭī*
- *Cyavanaprāśāvāleha*
- *Daśamūlāriṣṭa etc.*

Treatment of *sotha* (inflammation)

As per Ācārya Vṛddha Vāgbhaṭa -

श्वयथौ शुद्धकोष्ठस्य पयःपाने हितं शृतम् ।  
विश्वभेषजवैदेहीकटुकादेवदारुभिः ।  
सुरसामूलकल्कैर्वा छागं वा पिप्पलीशृतम् ॥

AS.Ut. 47.30

- *Viṣaja śvayathu* (inflammation due to poisoning) is treated by *śuddhi* (purification) of *koṣṭha* (alimentary canal) followed by drinking of *payah* (milk) processed with *viśvabheṣaja*, *vaidehī*, *kaṭukā* and *devadāru*; or *chāga payah* (goat's milk) processed with paste of *surasā mūla* or with *pippalī* is also beneficial.

त्रिफलायाः कषायेण त्रिवृता भाविता त्र्यहम् ।  
आलोड्य सर्पिषा पीता विषश्वयथुनाशिनी ॥

AS.Ut. 47.31

- *Trivṛt* triturated thrice with *triphalā kaṣāya* (decoction) is consumed with *sarpi* (ghee); this formulation is *viṣa-śvayathu-nāśinī* (pacifier of inflammation due to poisoning).

मधुवेल्लवराव्योषसुराह्वोशीरपद्मकैः ।  
विषश्वयथुजिल्लेपस्तथा स्वादुकषायकैः ॥

AS.Ut. 47.32

- *Lepa* (anointment) of *madhu* (honey), *vella*, *varā*, *vyoṣa*, *surāhva*, *uśīra* and *padmaka* is applied over the skin for eradicating inflammation (due to poisoning); similarly it's done using *svādu* (sweet) and *kaṣāya* (astringent) drugs.



शिरीषपुष्पाऽहिशिरोनतकुष्ठैर्घृतान्वितः ।  
धूपोऽगदः श्वयथुजित् समस्तविषनाशनः ॥

AS.Ut. 47.33

- *Dhūpana* (fumigation) with *śirīṣapuṣpa*, *ahiśiraḥ* (snake's chopped head), *nata*, and *kuṣṭha* added with *ghṛta* (ghee) cures *śvayathu* (inflammation) caused by *viṣa* (poisons).

#### Important formulations

- *Punarnavā maṇḍūra*
- *Tāpyādi lauha*
- *Lakṣmīvilāsa rasa*
- *Kāmadudhā rasa*
- *Punarnavāsava*
- *Daśāṅga lepa*
- *Madhukādi lepa* etc.

#### Treatment of *pūtidamśa* (putrefaction of bite-site)

As per Ācārya Vṛddha Vāgbhaṭa :

अल्पेनाप्यचारेण दंशः पूतित्वमश्नुते ।  
प्रायो न सहते तीक्ष्णमुष्णं वा भेषजं विषम् ॥  
मधुरस्निग्धशीतानि युज्यात्तस्माद्विषव्रणे ।  
सेकालेपांश्च सक्षीरैः कषायैः क्षीरिवृक्षजैः ॥

AS.Ut. 47.34-35

- *Damśa* (site of bite) attains *pūtitva* (putrefaction) by *alpa-apacāra* (slightest ignorance); *viṣa* (poison) cannot tolerate *bheṣaja* (drugs) that are *tikṣṇa* (sharp) and *uṣṇa* (warm); instead it is pacified by *madhura* (sweet), *snigdha* (unctuous) and *śīta* (cold) drugs.
- *Viṣavraṇa* (ulcers due to poisoning/ bite-site) is treated using *seka* (irrigation), *lepa* (anointment) and *kaṣāya* (decoction) of *kṣīrivṛkṣas* (latex producing plants) added with *ksīra* (milk).

न्यग्रोधशृंगमधुकतिलसर्षपसैन्धवम् ।

साभया निम्बपत्राज्यं दंशपूतित्वनाशनम् ॥

कर्णिकापातनं श्रेष्ठं विषव्रणविनाशनम् ॥

AS.Ut. 47.36

Paste of *śuṅga* (leaf buds) of *nyagrodha*, *madhuka*, *tila* (sesame), *sarṣapa*, *saindhava*, *abhayā* and *nimba patra* added with *ājya* (ghee) is *damśa-pūtitva-nāśaka* (destroyer of putrefaction of bite site), *karnikā-pātaka* (remover of keloidal growths)

and *viṣa-vraṇa-vināśaka* (eradicator of ulcerations due poisoning).

#### Treatment of *raktasrāva* (haemorrhage)

As per Ācārya Vṛddha Vāgbhaṭa -

रक्ते स्रवत्यतिभृशं घृतं समरिचं पिबेत् ।  
तण्डुलीयकमूलेन सितया वा समन्वितम् ॥

AS.Ut. 47.37

- In the event of copious discharge of *rakta* (blood), the patient should be made to drink *ghṛta* (ghee) processed with *marica* or *tanḍulīyaka mūla* or *sitā* (sugar).  
दंशं प्रलेपयेच्चास्य दार्व्यासु श्लक्ष्णपिष्टया ।  
सितोपलाक्षौद्रघृतच्छगदुग्धानि नावनम् ॥  
शमीकल्कं पिबेच्छ्लक्ष्णमंगं लिम्पोद्विशालया ।  
नावने हेमशुक्ला च ततः शाम्यति शोर्णितम् ॥

AS.Ut. 47.38-39

- *Damśa* (bite site) should be subjected to *pralepa* (anointment) of fine paste of *dārvī*; *nāvana* (errhines) using *sitopalā*, *kṣaudra* (honey), *ghṛta* (ghee) and *chāgadugdha* (goat's milk) should be given; *kalka* (fine paste) of *śamī* should be consumed; body should be smeared with paste of *viśālā*; *nāvana* (errhines) of *hema* and *śuklā* should be given; all these arrest discharge of *śoniṭa* (blood).

#### Important formulations

- *Muktāpiṣṭī*
- *Pravālapīṣṭī*
- *Uśīrāsava* etc.

#### Treatment of *viṣa-vāta* (psychic symptoms due to poisoning)

As per Ācārya Vṛddha Vāgbhaṭa :

कृशस्यातिस्त्रुते रक्ते रूक्षैरत्यर्थसेवितैः ।  
विषस्य च स्वभावेन मातरिश्वा प्रकुप्यति ॥  
उन्मादाक्षेपकमनोभ्रंशापस्मृतयस्ततः ।  
तत्रेष्टं स्नेहनं बस्तिनस्यप्रथमनाञ्जनम् ॥

AS.Ut. 47.40-41

- *Atisruti* (excessive discharge) of *rakta* (blood) in a *krśa* (lean individual) or indulging in *rukṣa* (dry) lifestyle or *svabhāva* (very nature) of *viṣa* (poison) causes *prakopa* (aggravation) of *mātarīśvā* (*vāta*); this results



in *unmāda* (insanity), *akṣepika* (convulsions), *manobhramśa* (mental instability) and *apasmṛti* (epilepsy); for eradicating these *suchana* (unction therapy), *bastikarma* (enema therapy), *nasyakarma* (errhines), *pradhamaṇa nasya* (powdered errhines) and *ahjana* (collyrium) is beneficial.

नागदन्त्यभयाकुष्ठपिप्पलीवृषकटुफलम् ।  
भस्वातकास्थिकटुकाबिल्वप्रतिविषाग्निक्वाः ।  
सक्षीरं तैर्घृतं सिद्धं विषवातविकारजित् ॥  
पिबेदेरण्डतैलं वा छगमांसरसान्वितम् ।  
एकघ्नं घृततैलं वा मेध्यमांसरसाशनः ॥

AS.Ut. 47.42-43

- *Ghṛta* (ghee) processed with *nāgadantī*, *abhayā*, *kuṣṭha*, *pippalī*, *vṛṣa*, *kaṭphala*, *bhallātakāsthī*, *kaṭukā*, *bilva*, *prativiṣā* and *agnika* added with *ksīra* (milk) cures diseases of *vāta* caused by *viṣa* (poison) should be partaken; patient should drink *eranda tailam* (castor oil) mixed with *chāga māṁsa rasa* (soup of goat's meat); mixture of *ghṛta* (ghee) and *taila* (oil) mixed with *medhya māṁsarasa* (fat rich meat soup) is also beneficial.

कार्पासमूलं मरिचं हरिद्रे नलदं नलम् ।  
पिप्पलीं स्वर्जिकां कुष्ठं जलेनालोड्य पाययेत् ।  
उन्मत्तं विषवातेन तथाऽपस्मारिणं नरम् ॥

AS.Ut. 47.44

- Patients of *unmāda* (insanity) and *apasmāra* (epilepsy) caused by *viṣavāta* (*vāta* aggravated by poison) should partake paste of *kārpāsamūla*, *marica*, *haridrā*, *dāruharidrā*, *nalada*, *nala*, *pippalī*, *svarjikā* and *kuṣṭha* mixed with *jala* (water).

वचाहंसपदीव्योषदधित्थं हस्तिपिप्पलीम् ।  
देवदारुबलाबिल्वकृमिजित् कुष्ठटुण्डुकम् ॥  
लोधाखुकर्ण्यतिविषाः क्षीरं सर्पिश्च पाययेत् ।  
निहन्ति पानाभ्यंगाभ्यां घृतं सर्वविषाणि तत् ॥

AS.Ut. 47.45-46

- *Sārpi* (ghee) processed with *vacā*, *haṁsapadī*, *vyoṣa*, *dadhitha*, *hastipippalī*, *devadāru*, *balā*, *bilva*, *kṛmijit*, *kuṣṭha*, *ṭuṅṭuka*, *lodhra*, *ākhukarṇī* and *ativiṣā* added with *ksīra* (milk) should be used for *pāna* (drinking) and *abhyāṅga* (massage/anointing).

### Important formulations

- *Sucarṇa bhasma*
- *Raupya bhasma*
- *Pravāla bhasma*
- *Mukta bhasma*
- *Kāmadudhā rasa*
- *Sūtasekhara rasa*
- *Brāhmī ghṛta*
- *Sārasvata cūrṇa*
- *Sārasvatāriṣṭa* etc.

### Dṛśya agada (sight therapy) and śabdaagada (sound therapy)

As per Ācārya Vṛddha Vāgbhaṭa :

दृश्यशब्दागतैरस्य विषशेषं निवर्तयेत् ।  
अल्पमप्यवशिष्टं हि व्याधये मरणाय वा ॥

AS.Ut. 47.48

Residual *viṣa* (poison) should be eliminated using *dṛśya agada* (sight therapy) and *śabdaagada* (sound therapy); even slight residue of poison can trigger diseases or death.

### Pathya (Apt) and apathya (inapt) regimen

Ācārya Govindadāsa Sena - author of *Bhaiṣaj-yaratnāvalī* - quotes *pathya* (Apt) and *apathya* (inapt) regimen for those inflicted with *viṣa* (poison).

### Pathyavihāra (apt regimen)

As per Ācārya Govindadāsa Sena :

अरिष्टाबन्धनं मन्त्रक्रिया छर्दिविरेचनम् ।  
कर्षणं शोणिताकृष्टिः परिषेकोऽवगाहनम् ॥  
हृदयावरणं नस्यमञ्जनं प्रतिसारणम् ।  
उद्धर्तनं प्रधमनं प्रलेपो वह्निकर्म च ॥  
उपधानं प्रतिविषं धूपः संज्ञा प्रबोधनम् ॥ BR. 72.74-76

- *ariṣṭābandhana* (tourniquet)
- *mantrakriyā* (incantations)
- *chardi* (*vamana-karma* - emesis)
- *virecana-karma* (purgation)
- *karṣaṇa* (leaning therapy)
- *śoṇitākṛṣṭi* (blood letting)
- *pariṣeka* (irrigation)
- *avagāhana* (bathing)
- *hrdayāvaraṇa* (cardio-protection)
- *nasyakarma* (nasal errhines)
- *añjanakarma* (collyrium)
- *pratisāraṇa* (scrubbing of drugs)
- *udvartana* (powdered massage)



- *pradhama* (blowing of powdered drugs)
- *pralepa* (application)
- *vahnikarma* (cauterization)
- *upadhāna* (application of medicine on the incision made over the scalp)
- *prativiṣa* (anti-dotes)
- *dhūpanakarma* (fumigation)
- *sajñāprabodhana* (resuscitation)

These measures are apt in condition of *viṣa* (poison).

#### *Pathyāhāra* (apt diet)

As per *Ācārya Govindadāsa Sena* :

शालयः षष्टिकाश्चापि कोरदूषाः प्रियंगवः ॥  
 मुद्गा हरेणवस्तैलं सर्पिर्जीर्णं नवं तथा ।  
 शिखितित्तिरिलावैणगोधाखुश्चाविदामिषम् ॥  
 वार्त्ताकुकुलकं धात्रीनिष्पावं तण्डुलीयकम् ।  
 मण्डूकपर्णी जीवन्ती सुनिषण्णोऽप्युपोदिका ॥  
 कालशाकं सलशुनं दाडिमं च विकंकतम् ।  
 प्राचीनामलकं पथ्या कपित्थं नागकेशरम् ॥  
 गोछगनरमूत्राणि तक्रं शीताम्बु शर्करा ।  
 अविदाहीनि चान्नानि सैन्धवं मधुकुंकुमम् ॥  
 पश्चिमोत्तरवाताश्च हरिद्रा सितचन्दनम् ।  
 मुस्तं शिरीषः कस्तूरी तित्कानि मधुराणि च ॥  
 हेमचूर्णं च वर्गोऽयं यथाऽवस्थं यथाविषम् ।  
 विषरोगेषु सर्वेषु प्रयोक्तव्यो विजानता ॥ BR. 72.77-82

• śāli	• vikaṅkata
• ṣaṣṭika	• prācināmalaka
• koradūṣa	• pathyā
• priyaṅgu	• kapittha
• mudga	• nāgakeśara
• hareṇu	• mūtra (urine) of go,
• taila	chāga and nara
• jīma sarpi or nava sarpi	• takra
• āmiṣa of śikhi, tittiri,	• śitāmbu
lāva, eṇa, godhā, ākhu	• śarkarā
& śvāvit	• avidāhi anna
• vārttāku	• saindhava
• kulaka	• madhu
• dhātri	• kuṅkuma
• niṣpava	• haridrā
• taṇḍuliyaka	• sitacandana
• maṇḍūkaparni	• musta
• jivanti	• paścima-uttara vāta
• suniṣanna	(wind blowing from
• upodika	west, north or north-
• kālāśaka	west)

• laśuna	• śirīṣa
• dāḍima	• kastūri
	• tikta (pungent) and
	mādhura (sweet) dra-
	vyas
	• hemacūrṇa
	(powder of gold)

#### *Apathya* (inapt articles)

As per *Ācārya Govindadāsa Sena* :

क्रोधं विरुद्धाध्यशनं व्यायामं ताम्बूलमायासमपि प्रवातम् ।  
 अम्लं च सर्वं लवणं च सर्वं स्वेदं च नानाविधमासु-  
 तानि ।

निद्रां भयं धूमविधिं क्षुधां च विषातुरो नैव भजेत्  
 कदाचित् ॥ BR. 72.83

• krodha (anger)	• svedana (fomentation)
• viruddhāna	• various kinds of āsuta
(incompatible food)	(pickles)
• vyavāya (sex)	• nidrā (sleep)
• tāmbūla (betle leaves)	
• āyāsa (physical labour)	• bhaya (phobia)
• pravāta	• dhūmavidhi
(easterly wind)	(smoking therapies)
• amla (sour) and lavaṇa	• kṣudhā (hunger)
(salty) food articles	

These subjects are inapt in case of poisoning.

#### Features indicating imminent death due to poisoning

As per *Ācārya Caraka* :

नीलौष्ठदन्तशैथिल्यकेशपतनांगभंगविक्षेपाः ।  
 शिशिरैर्न लोमहर्षो नाभिहते दण्डराजी स्यात् ॥  
 क्षतजं क्षताच्च नायात्येतानि भवन्ति मरणलिंगानि ।  
 एभ्योऽन्यथा चिकित्स्यास्तेषां चोपक्रमाञ्छृणु मे ॥

CS.Ci. 23.33-34

Features or signs indicating imminent death due to poisoning are:

- *nīla oṣṭha* (bluish discolouration of lips)
- *danta-śaithilya* (looseness of teeth)
- *keśapatana* (alopecia)
- *aṅgabhaṅga* (malaise)
- *vikṣepa* (convulsions)
- absence of *lomaharṣa* (horripilation) even if touched by *śiśira* (cold) articles
- absence of *daṇḍarājī* (contusions marks) in reaction to *abhihata* (trauma/ blows) and
- absence of bleeding from *kṣata* (wounds/ ulcers).





## STHĀVARA VIṢA (INANIMATE OR STATIC POISON)

### LEARNING OBJECTIVES

- Sthavara viṣa Adhithana (sites) - 10
- Types of sthavara viṣa - (2) Mahaviṣa & Upaviṣa
- Nos of sthavara viṣa - 55
  - Mulavisa - 8
  - Patra viṣa - 5
  - Phala viṣa - 12
  - Pushpa viṣa - 5
  - Tvaksarniyasa viṣa - 7
  - Ksira viṣa - 3
  - Dhatu viṣa - 2
  - Kanda viṣa - 13
- Phenasma and Haritala are Dhatu viṣa
- Viṣa cures poisoning because of prabhava.

### Definition of sthāvara viṣa (inanimate or static poisons)

- As per *Prāṇācārya Śrī Sadānanda Śarmā* - author of *Rasatarāṅgiṇī* :

खन्यौषधाश्रयं यत्तु विषं तत्स्थावराह्वयम्।

*Rasatarāṅgiṇī* 24.3

Poisonous substances that are mined or derived from plant kingdom are termed as *sthāvara viṣas* (inanimate or static poisons).

- As per *Ācārya Vṛddha Vāgbhaṭa* - ततस्तत् स्थावरासु मूर्तिष्वधिवसनात् स्थावरमित्युच्यते।

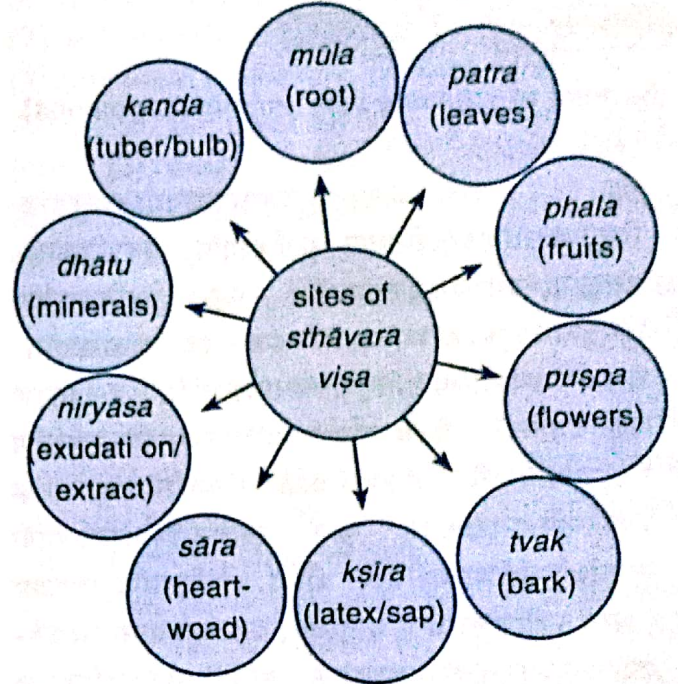
AS.Ut. 40.4

Poisonous substances occurring in *sthāvara* (inanimate/immobile/static) substances are termed as *sthāvara viṣas* (inanimate or static poisons).

### Sites of sthāvara viṣa (inanimate poisons)

- As per *Ācārya Suśruta* :  
मूलं पत्रं फलं पुष्पं त्वक् क्षीरं सार एव च।  
निर्यासो धातवश्चैव कन्दश्च दशमः स्मृतः॥

SS.K. 2.4



(1) Mūla (root), (2) patra (leaves), (3) phala (fruit), (4) puṣpa (flower), (5) tvak (bark), (6) kṣīra (latex/sap), (7) sāra (heartwood), (8) niryāsa (exudation/extract), (9) dhātu (minerals) and (10) kanda (tuber/bulb) - these are the ten sites of *sthāvara viṣa* (inanimate poisons).

- Similar sites are enumerated by *Ācārya Vṛddha Vāgbhaṭa*; he quotes -

तयोः स्थावरं मूलपत्रपुष्पफलत्वक्सारनिर्यासक्षीर-  
धातुकन्दभेदाद्दशाधिष्ठानम्। AS.Ut. 40.6

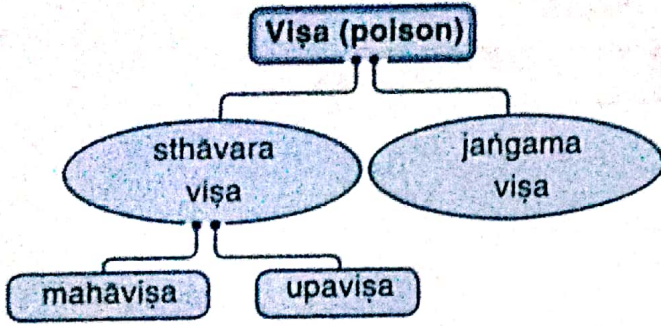
### Classification of sthāvara viṣa (poison of immobile origin/vegetable poison)

Classics on *Rasaśāstra* categorize *sthāvara viṣa* (poison of immobile origin/vegetable poison) into following two -

- mahāviṣa (strong poison)
- upaviṣa (mild poison)



Upaviṣa (mild poison), in comparison to mahāviṣa (strong poison), are milder in strength and toxic effects.



### Number of *sthāvara viṣa* (Inanimate poisons)

As per Ācārya Suśruta :

तत्र क्लीतकाश्चमारगुञ्जासुगन्धगर्गरककरघाट-  
विद्युच्छिखाविजयानीत्यष्टौ मूलविषाणि; विषपत्रिकाल-  
म्बावरदारुकरम्भमहाकरम्भाणि पञ्च पत्रविषापणि;  
कुमुद्वतीवेणुकाकरम्भमहाकरम्भककोटकरेणुकखद्योत-  
कचर्मरीभगन्धासर्पघातिनन्दनसारपाकानीति द्वादश  
फलविषाणि; वेत्रकादम्बवल्लीजकरम्भमहाकरम्भाणि  
पञ्च पुष्पविषाणि; अन्त्रपाचककर्तरीयसौरीयककरघाटक  
रम्भनन्दननाराचकानि सप्त त्वक्सारनिर्यासविषाणि  
कुमुदघ्नीस्तुहीजालक्षीरीणि त्रीणि क्षीरविषाणि फेनाशम  
( भस्म ) हरितालं च द्वे धातुविषे; कालकूटवत्सनाभसर्ष-  
पपालककर्दमकवैराटकमुस्तक शृंगीविषप्रपुण्डरीकमूल  
कहालाहलमहाविषकर्कटकानीति त्रयोदश कन्दविषाणि;  
इत्येवं पञ्चपञ्चाशत् स्थावरविषाणि भवन्ति ॥ SS.K. 2.5

- *Klītaka*, (2) *aśvamāra*, (3) *guñjā*, (4) *sugandha*, (5) *gargaraka*, (6) *karaghāṭa*, (7) *vidyucchikhā* and (8) *vijayānī* - these eight are *mūlaviṣas* (root poisons).
- *Viṣapatrikā*, (2) *lambā*, (3) *varadāru*, (4) *karambha* and (5) *mahākarambha* - these five are *patra-viṣas* (leaf poisons).
- *Kumudvatī*, (2) *veṇukā*, (3) *karambha*, (4) *mahākarambha*, (5) *karkoṭaka*, (6) *reṇuka*, (7) *khadyota*, (8) *carmarī*, (9) *ibhagandhā*, (10) *sarpaghātin*, (11) *nandana* and (12) *sārapāka* - these twelve are *phala-viṣas* (fruit poisons).
- *Vetra*, (2) *kādamba*, (3) *vallija*, (4) *karambha* and (5) *mahākarambha* - these five are *puṣpa-viṣas* (flower poisons).
- *Antrapācaka*, (2) *kartariya*, (3) *sauriyaka*, (4) *karaghāṭa*, (5) *karambha*, (6) *nandana* and (7)

*nārācaka* - these seven are poisons of *tvak* (bark), *sāra* (pith) and *niryāsa* (exudation).

- *Kumudaghñī*, (2) *snuhī* and (3) *jālakṣīri* - these three are *kṣīra viṣas* (latex poisons).
- *Phenāśma* and (2) *haritāla* - these two are *dhātu viṣas* (mineral poisons).
- *Kālakūṭa*, (2) *vatsanābha*, (3) *sarṣapa*, (4) *pālaka*, (5) *kardamaka*, (6) *vairāṭaka*, (7) *mustaka*, (8) *śrīngīviṣa*, (9) *prapuṇḍarika*, (10) *mūlaka*, (11) *hālāhala*, (12) *mahāviṣa* and (13) *karkoṭaka* - these thirteen are *kanda viṣas* (tuber poisons).

Thus there are fifty five poisons of immobile sources.

### *Mūlaviṣa* (root poison)

तत्र क्लीतकाश्चमारगुञ्जासुगन्धगर्गरककरघाटविद्युच्छि-  
खाविजयानीत्यष्टौ मूलविषाणि । SS.K. 2.5

Number: 8 Names:

- ♦ *Klītaka*
- ♦ *Aśvamāra*
- ♦ *Guñjā*
- ♦ *Sugandha*
- ♦ *Gargaraka*
- ♦ *Karaghāṭa*
- ♦ *Vidyucchikhā*
- ♦ *Vijayānī*

### *Patra-viṣa* (leaf poisons)

विषपत्रिकालम्बावरदारुकरम्भमहाकरम्भाणिपञ्च पत्र-  
विषापणि । SS.K. 2.5

Number: 5 Names:

- ♦ *Viṣapatrikā*
- ♦ *Lambā*
- ♦ *Varadāru*
- ♦ *Karambha*
- ♦ *Mahākarambha*

### *Phala-viṣas* (fruit poisons)

कुमुद्वतीवेणुकाकरम्भमहाकरम्भककोटकरेणुकखद्योतक  
चर्मरीभगन्धासर्पघातिनन्दनसारपाकानीति द्वादश  
फलविषाणि । SS.K. 2.5

Number: 12 Names:

- ♦ *Kumudvatī*
- ♦ *veṇukā*
- ♦ *karambha*
- ♦ *mahākarambha*
- ♦ *karkoṭaka*
- ♦ *reṇuka*
- ♦ *khadyota*
- ♦ *carmarī*
- ♦ *ibhagandhā*
- ♦ *sarpaghātin*
- ♦ *nandana*
- ♦ *sārapāka*

### *Puṣpa-viṣas* (flower poisons)

वेत्रकादम्बवल्लीजकरम्भमहाकरम्भाणि पञ्चपुष्प-  
विषाणि । SS.K. 2.5



Number: 5 Names:

- ◆ *Vetra* ◆ *Karambha*
- ◆ *Kādamba*
- ◆ *Vallija* ◆ *Mahākarambha*

*Tvak-viṣas* (bark poisons), *sāra-viṣas* (pith poisons) and *niryāsa-viṣas* (exudation poisons)

अन्त्रपाचककर्तरीयसौरीयककरघाटकरम्भनन्दननारा-  
चकानि सप्त त्वक्सारनिर्यासविषाणि । SS.K. 2.5

Number: 7 Names:

- ◆ *Antrapācaka* ◆ *Karambha*
- ◆ *Kartariya* ◆ *Nandana*
- ◆ *Sauriyaka* ◆ *Nārācaka*
- ◆ *Karaghāṭa*

*Kṣīra viṣas* (latex poisons)

कुमुदघ्नीस्नुहीजालक्षीरीणि त्रीणि क्षीरविषाणि ।

SS.K. 2.5

Number: 3 Names:

- ◆ *Kumudaghñī* ◆ *Jālakṣīri*
- ◆ *Snuhī*

*Dhātu viṣas* (mineral poisons)

फेनाश्म ( भस्म ) हरितालं च द्वे धातुविषे । SS.K. 2.5

Number: 2 Names :

- ◆ *Phenāśma* ◆ *Haritāla*

*Kanda viṣas* (tuber poisons)

कालकूटवत्सनाभसर्षपपालककर्दमकवैराटकमुस्तक-  
शृंगीविषप्रपुण्डरीकमूलकहालाहलमहाविषकर्कटका-  
नीति त्रयोदश कन्दविषाणि ।

SS.K. 2.5

Number: 13 Names:

- ◆ *Kālakūṭa* ◆ *Śṛṅgīviṣa*
- ◆ *Vatsanābha* ◆ *Prapuṇḍarika*
- ◆ *Sarṣapa* ◆ *Mūlaka*
- ◆ *Pālaka* ◆ *Hālāhala*
- ◆ *Kardamaka* ◆ *Mahāviṣa*
- ◆ *Vairāṭaka* ◆ *Karkaṭaka*
- ◆ *Mustaka*

As per *Ācārya Vṛddha Vāgbhaṭa*:

तत्र मूलविषाणि क्लीतनकाश्चमारकगुञ्जासुगन्धक  
गर्गरककर्करकरघाटकादीनि । पत्रविषं कालपत्रिका  
लम्बा वरदकरम्भार्कादीनाम् । पुष्पविषं वल्लीरेणुक-  
करम्भ महाकरम्भादीनाम् । फलं कुमुद्वतीरेणुकाक-  
रम्भमहाकरम्भ मदनकतुवरकादीनाम् । त्वक्सारनिर्यासाः

करककरघाटककरम्भमहाकरम्भनाराचकादीनाम् । क्षीरं  
कुमुद्वती दन्ती स्नुहार्कजालिनी व्यालादीनाम् । धातवो  
हरितालफेनाश्मभस्मरक्ताप्रभृतयः । कन्दजानि तु हाला-  
हलकालकूटवत्सनाभशृंगीसार्षपजालककर्दमकवैराट-  
कमुस्तकमुष्ककसात्तुकक्रौञ्चकवालकमहाविष पुण्डरी-  
कगालवमूलककर्कटकर्कटकरवीरकेन्द्रायुधसंकोचक-  
लांगलकतैलपेय कुशपुष्पके तु पुष्पकरोहिषाञ्जना-  
भकादीनि ।

AS.Ut. 40.7

*Mūlavīṣas* (root poisons) are - (1) *klītanaka*,  
(2) *aśvamāraka*, (3) *guñjā*, (4) *sugandhaka*,  
(5) *gargaraka*, (6) *karkara*, (7) *karaghāṭaka* etc.

*Patra-viṣa* (leaf poisons) are - (1) *kālapatrikā*, (2)  
*lambā*, (3) *varada*, (4) *karambha*, (5) *arka* etc.

*Puṣpa-viṣas* (flower poisons) are - (1) *vallīreṇuka*,  
(2) *karambha*, (3) *mahākarambha* etc.

*Phala-viṣas* (fruit poisons) are - (1) *kumudvatī*,  
(2) *reṇukā*, (3) *karambha*, (4) *mahākarambha*, (5)  
*madanaka*, (6) *tugaraka* etc.

*Tvak-viṣas* (bark poisons), *sāra-viṣas* (pith  
poisons) and *niryāsa-viṣas* (exudation poisons)  
are - (1) *karaka*, (2) *karaghāṭa*, (3) *karambha*, (4)  
*mahākarambha*, (5) *nārācaka* etc.

*Kṣīra viṣas* (latex poisons) are - (1) *kumudvatī*,  
(2) *dantī*, (3) *snuhī*, (4) *arka*, (5) *jālinī*, (6) *vyāla* etc.

*Dhātu viṣas* (mineral poisons) are - (1) *haritāla*,  
(2) *phenāśma bhasma*, (3) *raktā* etc.

*Kanda viṣas* (tuber poisons) are - (1) *hālāhala*, (2)  
*kālakūṭa*, (3) *vatsanābha*, (4) *śṛṅgī*, (5) *sarṣapa*, (6)  
*jālaka*, (7) *kardamaka*, (8) *vairāṭaka*, (9) *mustaka*,  
(10) *muṣkaka*, (11) *sāktuka*, (12) *krauñcaka*, (13)  
*vālaka*, (14) *mahāviṣa*, (15) *puṇḍarika*, (16) *gālava*,  
(17) *mūlaka*, (18) *markaṭa*, (19) *karkaṭaka*, (20)  
*karavīraka*, (21) *indrāyudha*, (22) *sañkocaka*, (23)  
*lāṅgalaka*, (24) *tailapeya*, (25) *kuśapuṣpaka*, (26)  
*puṣpakarohiṣa*, (27) *añjanābhaka* etc.

**Notes** - Among these *viṣas* (poisons), *vatsanābha*,  
*śṛṅgī* and *haritāla* are quite popular among  
medical fraternity and these are used for various  
purposes; similarly, *klītanaka* (licorice), *vijayā*,  
*bhaṅgā*, *kanera*, *guñjā* and *snuhī* are popular.  
*Phenāśma* (arsenic) is considered under *dhātu*  
*viṣas* (mineral poisons).

Remaining drugs are either extinct or their  
identification is under scanner or known to



forest dwellers only. This requires an extensive research.

### Sub-types of kanda viṣas (root poisons)

As per Ācārya Suśruta:

चत्वारि वत्सनाभानि मुस्तके द्वे प्रकीर्तिते ।

षट् चैव सर्षपाण्याहुः शेषाण्येकैकमेव तु ॥ SS.K. 2.6

Vatsanābha is of four types, *mustaka* of two types and *sarṣapa* of six types while the remaining ones are one each.

All viṣa (poison) are also known as “mauli”

As per Ācārya Vṛddha Vāgbhaṭa:

सर्वमपि चैतन्मौलमित्युच्यते मूलाश्रयत्वात् पत्रादीनाम् ।

AS.Ut. 40.6

All the above mentioned viṣas (poisons) are called *mauli* (root poisons) because *patra* (leaves) etc. are all dependent on the *mūla* (root).

### Features of sthāvara viṣa (inanimate poisons)

General features:

Ācārya Caraka says :

जंगमं स्यादधोभागमूर्ध्वभागं तु मूलजम् । CS.Ci. 23.17

*Sthāvara viṣa* (inanimate poison) moves upwards in the alimentary canal.

स्थावरं तु ज्वरं हिककां दन्तहर्षं गलग्रहम् ।

फेनवम्यरुचिश्चासमूर्च्छंश्च जनयेद्विषम् ॥ CS.Ci. 23.16

*Sthāvara viṣa* (poison of immobile origin/vegetable poison) exhibits following general features:

- *jvara* (fever)
- *hikkā* (hiccough)
- *dantaharṣa* (tingling sensation in the teeth)
- *galagraha* (obstruction in the throat)
- *phena* (frothing from mouth)
- *vamana* (vomiting)
- *aruci* (anorexia)
- *śvāsa* (dyspnoea/ asthma)
- *mūrcchā* (fainting).

Specific features as per the *adhīṣṭ-hāna* (site)

*Mūla viṣas* (root poisons)

As per Ācārya Suśruta:

उद्वेष्टनं मूलविषैः प्रलापो मोह एव च ।

SS.K. 2.7

*Mūlaviṣas* (root poisons) cause *udveṣṭana* (cramps), *pralāpa* (delirium) and *moha* (mental confusion).

*Patra-viṣas* (leaf poisons)

As per Ācārya Suśruta:

जृम्भांगोद्वेष्टनश्चासा ज्ञेयाः पत्रविषेण तु ॥ SS.K. 2.7

*Jṛmbhā* (yawning), *udveṣṭana* (cramps in limbs) and *śvāsa* (dyspnoea) arise by *patra-viṣas* (leaf poisons).

*Phala-viṣas* (fruit poisons)

As per Ācārya Suśruta:

मुष्कशोफः फलविषैर्दाहोऽन्नद्वेष एव च । SS.K. 2.8

*Phala -viṣas* (fruit poisons) cause *muṣka śopha* (inflammation of scrotum), *dāha* (burning sensation) and *anna-dveṣa* (aversion to food).

*Puṣpa-viṣas* (flower poisons)

As per Ācārya Suśruta:

भवेत् पुष्पविषैश्छर्दिराध्मानं मोह एव च ॥ SS.K. 2.8

*Chardi* (vomiting), *ādhmāna* (flatulence) and *moha* (mental confusion) appear by *puṣpa-viṣas* (flower poisons).

*Tvak-viṣas* (bark poisons), *sāra-viṣas* (pith poisons) and *niryāsa-viṣas* (exudation poisons)

As per Ācārya Suśruta:

त्वक्सारनिर्यासविषैरुपयुक्तैर्भवन्ति हि ।

आस्यदौर्गन्ध्यपारुष्यशिरोरुक्कफसंस्त्रवाः ॥ SS.K. 2.9

*Āsyadaurgandhya* (hallitosis), *pāruṣya* (roughness), *śīroruk* (headache) and *kapha-saṁsrava* (excessive discharge of mucus) appear by *tvak-viṣas* (bark poisons), *sāra-viṣas* (pith poisons) and *niryāsa-viṣas* (exudation poisons).

*Kṣīra viṣas* (latex poisons)

As per Ācārya Suśruta:

फेनागमः क्षीरविषैर्विड्भेदो गुरुजिह्वता । SS.K. 2.10

*Kṣīra viṣas* (latex poisons) cause *phenāgama* (frothing mouth), *viḍbheda* (diarrhoea) and *gurujihvatā* (heaviness in tongue).

*Dhātu viṣas* (mineral poisons)

As per Ācārya Suśruta:

हृत्पीडनं धातुविषैर्मूर्च्छं दाहश्च तालुनि ॥ SS.K. 2.10



*Dhātu viṣas* (mineral poisons) cause *hṛtpīḍana* (cardiac pain), *mūrcchā* (fainting) and *tālu-dāha* (burning sensation in palate).

Table 8.1 : Specific features as per the *adhīsthāna* (site)

S.no.	Adhīsthāna (site)	Specific features
1.	<i>Mūla viṣas</i> (root poisons)	<ul style="list-style-type: none"> <li>• <i>udveṣṭana</i> (cramps)</li> <li>• <i>pralāpa</i> (delirium)</li> <li>• <i>moha</i> (mental confusion)</li> </ul>
2.	<i>Paṭra-viṣas</i> (leaf poisons)	<ul style="list-style-type: none"> <li>• <i>jimbha</i> (yawning)</li> <li>• <i>udveṣṭana</i> (cramps in limbs)</li> <li>• <i>śvāsa</i> (dyspnoea)</li> </ul>
3.	<i>Phala-viṣas</i> (fruit poisons)	<ul style="list-style-type: none"> <li>• <i>muśkaśopha</i> (inflammation of scrotum)</li> <li>• <i>dāha</i> (burning sensation)</li> <li>• <i>annadveṣa</i> (aversion to food)</li> </ul>
4.	<i>Puṣpa-viṣas</i> (flower poisons)	<ul style="list-style-type: none"> <li>• <i>chardi</i> (vomiting)</li> <li>• <i>ādhmāna</i> (flatulence)</li> <li>• <i>moha</i> (mental confusion)</li> </ul>
5.	<i>Tvak-viṣas</i> (bark poisons), <i>sāra-viṣas</i> (pith poisons) and <i>niryāsa-viṣas</i> (exudation poisons)	<ul style="list-style-type: none"> <li>• <i>āsyadaurgandhya</i> (hallitosis)</li> <li>• <i>pāruṣya</i> (roughness)</li> <li>• <i>śīroruk</i> (headache)</li> <li>• <i>kaphasamsrava</i> (excessive discharge of mucus)</li> </ul>
6.	<i>Kṣīra viṣas</i> (latex poisons)	<ul style="list-style-type: none"> <li>• <i>phenāgama</i> (frothing of mouth)</li> <li>• <i>viḍbheda</i> (diarrhoea)</li> <li>• <i>gurujihvatā</i> (heaviness in tongue)</li> </ul>
7.	<i>Dhātu viṣas</i> (mineral poisons)	<ul style="list-style-type: none"> <li>• <i>hṛtpīḍana</i> (cardiac pain)</li> <li>• <i>mūrcchā</i> (fainting)</li> <li>• <i>tālu-dāha</i> (burning sensation in palate)</li> </ul>

**Specific features of *kanda-viṣa* (tuber poisons)**

As per Ācārya Suśruta :

कन्दजानि तु तीक्ष्णानि तेषां वक्ष्यामि विस्तरम् ॥

स्पर्शाज्ञानं कालकूटे वेपथुः स्तम्भ एव च ।

ग्रीवास्तम्भो वत्सनाभे पीतविण्मूत्रनेत्रता ॥

सर्पपे वातवैगुण्यमानाहो ग्रन्थिजन्म च ।

ग्रीवादौर्बल्यवाक्संगौ पालकेऽनुमताविह ॥

प्रसेकः कर्दमाख्येन विड्भेदो नेत्रपीतता ।

वैराटकेनांगदुःखं शिरोरोगश्च जायते ॥

गात्रस्तम्भो वेपथुश्च जायते मुस्तकेन तु ।

शृंगीविषेणांगसाददाहोदरविषुद्भयः ॥

पुण्डरीकेण रक्तत्वमक्षणोर्बुद्धिस्तथोदरे ।

वैचपर्यं मूलकैश्छर्दिहिककाशोफप्रमूढता ॥

चिरेणोच्छ्वसिति श्यावो नरो हात्लाहलेन वै ।

महाविषेण हृदये ग्रन्थिशूलोद्गमी भृशम् ॥

कर्कटेनोत्पतत्यूर्ध्वं हसन् दन्तान् दशत्यपि ।

SS.K. 2.11-17

*Kanda-viṣa* (tuber poisons) are *tīkṣṇa* (virulent natured).

- Poisoning by *kālakūṭa* causes - *sparśājñāna* (loss of sensation), *vepathu* (trembling) and *stambha* (stiffness).
- Poisoning by *vatsanābha* causes - *grīvāstambha* (neck stiffness), *pīta-viḍ* (yellowish faeces), *pīta-mūtra* (yellowish urine) and *pīta-netratā* (yellowish discolouration of eyes).
- Poisoning by *sarṣapa* causes - *vāta-vaiguṇya*, *ānābha* (abdominal distension) and appearance of *granthi* (cysts).
- Poisoning by *pālaka* causes - *grīvādaurbalya* (weakened neck) and *vāksaṅga* (obstructed speech).
- Poisoning by *kardama* causes - *praseka* (profuse salivation), *viḍbheda* (diarrhoea) and *netrapītatā* (yellowish discolouration of eyes).
- Poisoning by *vairāṭaka* causes - *aṅga-duḥkha* (malaise) and *śīroroga* (headache).
- Poisoning by *mustaka* causes - *gātrastambha* (stiffness of body) and *vepathu* (trembling).
- Poisoning by *śṛṅgīviṣa* causes - *aṅgasāda* (malaise), *dāha* (burning sensation) and *udara-vivṛddhi* (abdominal enlargement).
- Poisoning by *punḍarīka* causes - *raktatva akṣi* (redened eyes) and *udaravṛddhi* (abdominal enlargement).
- Poisoning by *mūlaka* causes - *vaivarṇya* (discolouration), *chardi* (vomiting), *hikkā* (hiccough), *śopha* (oedema) and *pramūḍhatā* (loss of consciousness).



- Poisoning by *hālāhala* causes - *ciraśvāsa* (prolonged breathing) and *śyāva* (blackish discoloration).
- Poisoning by *mahāvīṣa* causes - *granthi* (knotted growth) in *hṛdaya* (cardiac region) and also severe *śūla* (pain).
- Poisoning by *karkaṭaka* causes - jumping, laughing and biting of *danta* (teeth).

Table 8.2 : Specific features of *kanda-viṣa* (tuber poisons)

S.No.	Kanda-viṣa (tuber poisons)	Specific features
1.	<i>Kālakūṭa</i>	<ul style="list-style-type: none"> <li>• <i>sparsājñāna</i> (loss of sensation)</li> <li>• <i>vepathu</i> (trembling)</li> <li>• <i>stambha</i> (stiffness)</li> </ul>
2.	<i>Vatsanābha</i>	<ul style="list-style-type: none"> <li>• <i>grīvāstambha</i> (neck stiffness)</li> <li>• <i>pīta-vit</i> (yellowish faeces)</li> <li>• <i>pīta-mūtra</i> (yellowish urine)</li> <li>• <i>pīta-netrata</i> (yellowish discoloration of eyes)</li> </ul>
3.	<i>Sarṣapa</i>	<ul style="list-style-type: none"> <li>• <i>vātavaigunya</i></li> <li>• <i>ānāha</i> (abdominal distension)</li> <li>• appearance of <i>granthi</i> (cysts)</li> </ul>
4.	<i>Pālaka</i>	<ul style="list-style-type: none"> <li>• <i>grīvādaurbalya</i> (weakened neck)</li> <li>• <i>vākṣariga</i> (obstructed speech)</li> </ul>
5.	<i>Kardama</i>	<ul style="list-style-type: none"> <li>• <i>praseka</i> (profuse salivation)</li> <li>• <i>viḍbheda</i> (diarrhoea)</li> <li>• <i>netrapitā</i> (yellowish discoloration of eyes)</li> </ul>
6.	<i>Vairāṭaka</i>	<ul style="list-style-type: none"> <li>• <i>aṅgaduḥkha</i> (malaise)</li> <li>• <i>śīroroga</i> (headache)</li> </ul>
7.	<i>Mustaka</i>	<ul style="list-style-type: none"> <li>• <i>gātrastambha</i> (stiffness of body)</li> <li>• <i>vepathu</i> (trembling)</li> </ul>
8.	<i>Śṛṅgiviṣa</i>	<ul style="list-style-type: none"> <li>• <i>aṅgasāda</i> (malaise)</li> <li>• <i>dāha</i> (burning sensation)</li> <li>• <i>udara-vivṛddhi</i> (abdominal enlargement)</li> </ul>
9.	<i>Puṇḍarika</i>	<ul style="list-style-type: none"> <li>• <i>raktatva akṣi</i> (redened eyes)</li> <li>• <i>udaravṛddhi</i> (abdominal enlargement)</li> </ul>
10.	<i>Mūlaka</i>	<ul style="list-style-type: none"> <li>• <i>vaivarṇya</i> (discolouration)</li> <li>• <i>chardi</i> (vomiting)</li> <li>• <i>hikkā</i> (hiccough)</li> <li>• <i>śopha</i> (oedema)</li> <li>• <i>pramūḍhatā</i> (loss of consciousness)</li> </ul>

S.No.	Kanda-viṣa (tuber poisons)	Specific features
11.	<i>Halāhala</i>	<ul style="list-style-type: none"> <li>• <i>ciraśvāsa</i> (prolonged breathing)</li> <li>• <i>śyāva</i> (blackish discoloration)</li> </ul>
12.	<i>Mahāvīṣa</i>	<ul style="list-style-type: none"> <li>• <i>granthi</i> (knotted growth) in <i>hṛdaya</i> (cardiac region)</li> <li>• severe <i>śūla</i> (pain)</li> </ul>
13.	<i>Karkaṭaka</i>	<ul style="list-style-type: none"> <li>• jumping</li> <li>• laughing</li> <li>• biting of <i>danta</i> (teeth)</li> </ul>

Features of *sthāvāra viṣa* (poison of immobile origin/vegetable poison) as per *vega* (velocity):

As per *Ācārya Suśruta*:

स्थावरस्योपयुक्तस्य वेगे तु प्रथमे नृणाम् ।  
 श्यावा जिह्वा भवेत्स्तब्धा मूर्च्छा श्वासश्च जायते ॥  
 द्वितीये वेपथुः सादो दाहः कण्ठरुजस्तथा ।  
 विषमामाशयप्राप्तं कुरुते हृदि वेदनाम् ॥  
 तालुशोषं तृतीये तु शूलं चामाशये भृशम् ।  
 दुर्वर्णं हरिते शूने जायते चास्य लोचने ॥  
 पक्वामाशययोस्तोदो हिक्का कासोऽन्त्रकूजनम् ।  
 चतुर्थे जायते वेगे शिरसश्चातिगौरवम् ॥  
 कफप्रसेको वैवर्ण्यं पर्वभेदश्च पञ्चमे ।  
 सर्वदोषप्रकोपश्च पक्वाधाने च वेदना ॥  
 षष्ठे प्रज्ञाप्रणाशश्च भृशं चाप्यतिसार्यते ।

स्कन्धपृष्ठकटीभंगः सन्निरोधश्च सप्तमे ॥ SS.K. 2.34-39

On ingestion of the *sthāvāra viṣa* (poison of immobile origin/vegetable poison), in the *prathama vega* (first stage), *jihvā* (tongue) becomes *śyāva* (blackish) and *stabdha* (stiff) and there occurs *mūrcchā* (dyspnoea) and *śvāsa* (dyspnoea).

In the *dvitīya vega* (second stage), it causes *vepathu* (trembling), *sāda* (malaise), *dāha* (burning sensation), *kaṅṭharujā* (pain in throat), and being located in *āmāśaya* (stomach), produces *vedanā* (pain) in the *hṛdaya* (heart).

In the *trītiya vega* (third stage), it causes *tāluśoṣa* (dryness of palate), excruciating *āmāśaya śūla* (gastric pain) and *locana* (eyes) become *durvarṇa* (discoloured), *harita* (greenish) and *śūna* (swollen).

In the *caturtha vega* (fourth stage), there occur *stoda* (pricking pain) in *pakvāśaya* (colon) and



*āmāśaya* (stomach), *hikkā* (hiccough), *kāsa* (cough), *āntrakūjana* (gurgling sound in intestines) and *atigaurava* (marked heaviness) in *śiraḥ* (head region).

In the *pañcama vega* (fifth stage), there occurs *kaphapraseka* (excessive secretion of mucus), *vaivarṇya* (discolouration) and *parvabheda* (tearing pain in small joints).

In the *ṣaṣṭha vega* (sixth stage), there occurs-*prakopa* (aggravation) of all the *doṣas*, *vedanā* (pain) in *pakvādhāna* (intestines) along with *prajñāpranāśa* (loss of consciousness) and *atisāra* (diarrhoea).

In the *saptama vega* (seventh stage) there occurs *bhaṅga* (breaking pain) in *skandha* (shoulders), *prṣṭha* (back) and *kaṭī* (waist) along with *sannirodha* (cessation of life).

### Treatment of *sthāvara viṣa* (poison of immobile origin/ vegetable poison) - according to the *vegas*

*Ācārya Caraka* says :

तस्माद्दंष्ट्राविषं मौलं हन्ति मौलं च दंष्ट्रजम् ॥

CS.Ci. 23.17

The *jāngama-viṣa* (animal poison) cures the poisoning caused by *sthāvara viṣa* (poison of immobile origin/vegetable poison). This is justified by *Ācārya Caraka* in the 26th chapter of *Sūtrasthāna*; he quotes -

विषं विषघ्नमुक्तं यत् प्रभावस्तत्र कारणम् ।

CS.Sū. 26.69

i.e. administration of a *viṣa* (poison) cures poisoning because of *prabhāva* (specific action).

### Treatment of *prathama vega* (first stage)

As per *Ācārya Caraka* :

त्वङ्मांसगतं दाहो दहति विषं स्रावणं हरति रक्तात् ।

पीतं वमनैः सद्यो हरेत् ॥

CS.Ci. 23.45

*Dahana-karma* (cauterization) burns the *viṣa* (poison) located in the *tvak* (skin) and the *māmsa* (flesh); *rakta-srāvaṇa* (blood-letting) helps the flowing out of *viṣa* (poison) from the *rakta* (blood). *Vamana-karma* (emesis) helps in the prompt abolition of *viṣa* (poison) taken orally.

As per *Ācārya Suśruta* :

प्रथमे विषवेगे तु वान्तं शीताम्बुसेचितम् ।

अगदं मधुसर्पिर्भ्यां पाययेत समायुतम् ॥ SS.K. 2.40

In the *prathama vega* (first stage), the patient should be subjected to *vamana* (emesis), *śītāmbu secana* (sprinkling of cold water) and then given to drink *agada* (antipoisonous formulation) mixed with *madhu* (honey) and *sarpi* (ghee).

### Treatment of *dvitīya vega* (second stage)

As per *Ācārya Caraka* :

विरैकैर्द्वितीये तु ॥

CS.Ci. 23.45

आदौ हृदयं रक्ष्यं तस्यावरणं पिबेद्यथालाभम् ।

मधुसर्पिर्मज्जपयोगैरिकमथ गोमयरसं वा ॥

इक्षुं सुपक्वमथवा काकं निष्पीड्य तद्रसं वरणम् ।

छागादीनां वाऽसृग्भस्म मृदं वा पिबेदाशु ॥

CS.Ci. 23.46-47

In the *dvitīya vega* (second stage) of poisoning, *virecana* (purgation) helps in elimination of *viṣa* (poison).

The *hṛdaya* (heart), right from beginning, should be protected from ill effects of *viṣa* (poison) by all means. *Madhu* (honey), *sarpi* (ghee), *majjā* (bone marrow), *payah* (milk), *gairika* (ochre), *gomaya-rasa* (juice of cow-dung), *supakva ikṣurasa* (well boiled sugarcane juice), *rasa* (juice) squeezed out of the *māmsa* (meat) of *kāka* (crow), *asṛk* (blood) of *chāga* (goat) etc., *bhasma* (ashes) or *mṛda* (mud) diluted in water - these can be prescribed.

As per *Ācārya Suśruta* :

द्वितीये पूर्ववद्वान्तं पाययेत्तु विरेचनम् ।

SS.K. 2.41

In the *dvitīya vega* (second stage) of poisoning, *virecana* (purgation) is indicated for elimination of *viṣa* (poison).

### Treatment of *trītiya vega* (third stage)

As per *Ācārya Caraka* :

क्षारागदस्तृतीये शोफहरैर्लेखनं समध्वम्बु ।

CS.Ci. 23.48

In the *trītiya vega* (third stage) of poisoning, the patient should be given *Kṣāragada* along with *madhu* (honey) and *ambu* (water). This recipe abates *śopha* (oedema) and it has *lekhana* (scraping) action.



As per Ācārya Suśruta :

तृतीयेऽगदपानं तु हितं नस्यं तथाऽञ्जनम् ॥ SS.K. 2.41  
In the *tṛtīya vega* (third stage) of poisoning, intake of *agada* (anti-poisonous recipe), *nasya* (errhines) and *añjana* (collyrium) are useful.

**Treatment of *caturtha vega* (fourth stage)**

As per Ācārya Caraka :

गोमयरसश्चतुर्थे वेगे सकपित्थमधुसर्पिः । CS.Ci. 23.48  
During the *caturtha vega* (fourth stage) of poisoning, the patient should take the *gomaya-rasa* (juice of cow-dung) along with the juice of *kapittha*, *madhu* (honey) and *sarpi* (ghee).

As per Ācārya Suśruta :

चतुर्थे स्नेहसंमिश्रं पाययेदागदं भिषक् । SS.K. 2.42  
In the *caturtha vega* (fourth stage) of poisoning, the physician should administer *agada* (anti-poisonous recipe) mixed with *sneha* (fat).

**Treatment of *pañcama vega* (fifth stage)**

As per Ācārya Caraka :

काकाण्डशिरीषाभ्यां स्वरसेनाश्च्योतनाञ्जने नस्यम् ।  
स्यात्पञ्चमेऽथ ॥ CS.Ci. 23.49  
During the *pañcama vega* (fifth stage) of poisoning, the patient should be subjected to *āścyotana* (application of cotton pads soaked in juice over the eyes), *añjana* (collyrium) and *nasya karma* (nasal errhines) with juice of *kākāṇḍa* and *śirīṣa*.

As per Ācārya Suśruta :

पञ्चमे क्षौद्रमधुकक्वाथयुक्तं प्रदापयेत् ॥ SS.K. 2.42  
In the *pañcama vega* (fifth stage) of poisoning, the *agada* (anti-poisonous recipe) should be administered with *madhuka kvātha* (decoction) mixed with *kṣaudra* (honey).

**Treatment of *ṣaṣṭha vega* (sixth stage)**

As per Ācārya Caraka :

षष्ठे संज्ञायाः स्थापनं कार्यम् ॥  
गोपित्तयुता रजनी मञ्जिष्ठा मरिचपिप्पलीनाम् ।  
CS.Ci. 23.49-50  
During the *ṣaṣṭha vega* (sixth stage) of poisoning, the patient should be given *sañjñāsthāpana*

(therapies for revival of conscious); for this the patient should drink preparation of *rajanī*, *mañjiṣṭhā*, *marica*, *pippalī* and *gopitta* (cow's bile).

As per Ācārya Suśruta :

षष्ठेऽतीसारवत् सिद्धिरवपीडः । SS.K. 2.43  
In the *ṣaṣṭha vega* (sixth stage) of poisoning, it should be treated like *atisāra* (diarrhoea).

**Treatment of *saptama vega* (seventh stage)**

As per Ācārya Caraka :

विषपानं दष्टानां विषपीते दंशनं चान्ते । CS.Ci. 23.50  
At the *saptama vega* (seventh stage) of poisoning, the patient should be made to drink *viṣa* (poison) if he is afflicted with the *daṣṭa* (poisoning by bite) and vice-versa (i.e. if he is afflicted by the oral poisoning, then he should be made to be bitten by a poisonous animal).

As per Ācārya Suśruta :

अवपीडश्च सप्तमे ।

मूर्ध्नि काकपदं कृत्वा सासृग्वा पिशितं क्षिपेत् ॥  
SS.K. 2.43

In the *saptama vega* (seventh stage) of poisoning, *avapīḍa* (powder snuff) or incising of *mūrdhā* (scalp) in *kākapada* (similar to crow's feet) shape and placing *piśita* (meat) with *asṛk* (blood) is prescribed.

**Treatment of *aṣṭama vega* (eighth stage)**

Ācārya Caraka counts eight *viṣa-vegās* (stages of poisoning) whereas Ācārya Suśruta's count is till seven.

As per Ācārya Caraka :

शिखिपित्तार्थयुतं स्यात् पलाशबीजमगदो मृतेषु वरः ।  
वार्ताकुफाणितागारधूमगोपित्तनिम्बं वा ॥  
गोपित्तयुतैर्गुटिकाः सुरसाग्रन्थिद्विरजनीमधुककुष्ठैः ।  
शस्ताऽमृतेन तुल्या शिरीषपुष्पकाकाण्डकरसैर्वा ॥

CS.Ci. 23.51-52

If the patient seems to be dead due to poisoning, then he should be given powder of *palāśa bīja* mixed with half the quantity of *śikhi-pitta* (bile of peacock). Instead, he may be given *vārtāku*, *phāṇita*, *āgāradhūma*, *gopitta* (cow's bile) and *nimba*.



The *guṭikā* (pill) made of *surasā*, *granthi*, *haridrā*, *dāruharidrā*, *madhuka* and *kuṣṭha* mixed with *gopitta* (cow's bile) works like an *amṛta* (ambrosia) for the patient afflicted with poisoning.

Alternatively, this *guṭikā* (pill) should be made using *surasā*, *granthi*, *haridrā*, *dāruha-ridrā*, *madhuka* and *kuṣṭha* triturated with juice of *śirīṣapuṣpa* and *kākāṇḍaka rasa*.

### **Kākapada (incising of scalp)**

As per *Ācārya Suśruta* :

मूर्ध्नि काकपदं कृत्वा सासृग्वा पिशितं क्षिपेत् ॥

SS.K. 2.43

In the *saptama vega* (seventh stage) of poisoning, pressed snuff should be applied or incising the scalp flesh with blood should be put thereon.

As per *Ācārya Caraka* :

विषदूषितकफमार्गः स्रोतःसंरोधरुद्धवायुस्तु ।

मृत् इव श्वसेन्मत्र्यः स्यादसाध्यलिङ्गैर्विहीनश्च ॥

चर्मकषायाः कल्कं बिल्वसमं मूर्ध्नि काकपदमस्य ।

कृत्वा दद्यात्कटभीकटुकटफलप्रधमनं च ॥

छागं गव्यं माहिषं वा मांसं कौक्कुटमेव वा ।

दद्यात् काकपदे तस्मिंस्ततः संक्रमते विषम् ॥

CS.Ci. 23.65-67

Vitiation of *kapha-mārga* (channel for circulation of *kapha*) by *viṣa* (poison) causes *srotah-saṁrodha* (obstruction in bodily channels) and there by aggravation of *vāyu*; as a result, the patient breaths as if he is about to die soon. If he is devoid of *asādhyā liṅga* (signs of incurability), then incision resembling *kākapada* (crow's feet) should be made on his *mūrdhā* (scalp) and one *bilva* (in quantity) of *carmakaṣā kalka* (paste) applied; the patient should be subjected to *pradhamaṇa nasya* (powdered errhines) using *kaṭabhī*, *kaṭu* (*trikaṭu*) and *kaṭphala*. Over the *kākapada* (incised part resembling crow's feet) *māṁsa* (meat) of *chāga* (goat), *gavya* (cow), *māhiṣa* (buffalo) or *kukkuṭa* (cock) should be placed; this absorbs the *viṣa* (poison) from the body.

नामाक्षिकर्णजिह्वाकण्ठनिरोधेषु कर्म नस्तः स्यात् ।

घाताकुबीजपूरज्योतिष्मत्यादिभिः पिष्टैः ॥

अञ्जनमक्ष्युपरोधे कर्तव्यं वस्तमूत्रपिष्टैस्तु ।

दारुव्योषहरिद्राकरवीरकरञ्जनिम्बसुरसैस्तु ॥

CS.Ci. 23.68-69

If there is *nirodha* (obstruction) to the *nāsā* (nasal passage), *akṣi* (vision), *karṇa* (ears), *jihvā* (tongue) and *kaṇṭha* (throat), then the patient should be subjected to *nastahkarma* (nasal errhines) using paste of *vārtāku*, *bijapūra*, *jyotiṣmatī* etc.

If there occurs *akṣyuparodha* (visual obstruction), then the *añjana* (collyrium) prepared of *devadāru*, *vyoṣa*, *haridrā*, *karavīra*, *karañja*, *nimba* and *surasā* triturated with *bastamūtra* (goat's urine) should be applied over the eyes.

### **Treatment in between the consecutive *vegāntaras***

As per *Ācārya Suśruta* :

वेगान्तरे त्वन्यतमे कृते कर्मणि शीतलाम् ।

यवागूं सघृतक्षौद्रामिमां दद्याद्विषापहाम् ॥

कोषातक्योऽग्निः पाठासूर्यवल्ग्यमृताभयाः ।

शिरीषः किण्णिहि शेलुर्गिर्याह्वा रजनीद्वयम् ॥

पुनर्नवे हरेणुश्च त्रिकटुः सारिवे बला ।

एषां यवागूर्निष्कवाथे कृता हन्ति विषद्वयम् ॥

SS.K. 2.44-46

If the *vegāntaras* (impulse) is of different nature (fatal), *śītala yavāgū* (cooled anti-poisonous gruel) mixed with *ghṛta* (ghee) and *kṣaudra* (honey) and made with *kaṣāya* (decoction) of the following drugs should be given - *koṣātaka*, *agnika* (*ajamoda*), *pāṭhā*, *sūryavallī*, *guḍuḥ*, *haritakī*, *śirīṣa*, *kiṇṇihī*, *śleṣmātaka*, *girikarṇikā*, *haridrā*, *dāruharidrā*, both types of *punarnavā*, *hareṇu*, *trikaṭu*, two types of *sārivā* and *balā*. It destroys both types of *viṣa* (poisons).

### **Vatsanābha (Aconite)**

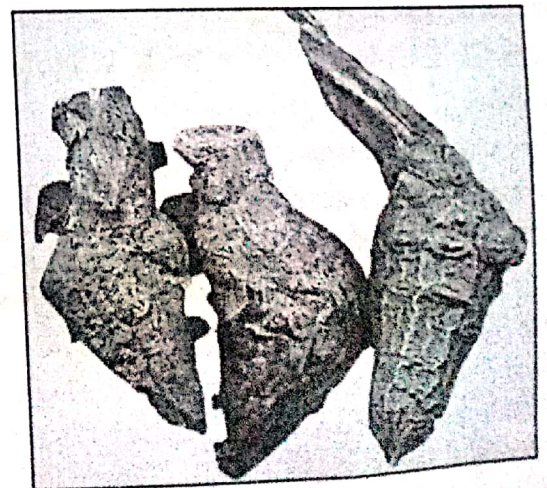


Fig. 8.1 : Vatsanābha (Aconite)



Candiac poison

Latin name

- *Aconitum ferox*

English name

- Aconite

Family

- Ranunculaceae

Āyurvedic description

Synonyms

- *vatsanābha*
- *amṛta*
- *viṣa*

Gāṇa (category)

- *Dhātovādi varga* (as per Ācārya Bhāvamiśra)

Rasa

- *madhura* (sweet)

Guṇa

- *laghu* (lightness)
- *rūkṣa* (non-unctuous)
- *fikṣṇa* (sharpness)
- *vyatāyī* (all-pervading prior to digestion) and
- *vikāsi* (slackening)

Vīrya

- *uṣṇa* (hot)

Vipāka

- *madhura* (sweet)

Karma

- *Śuddhavatsanābha* (1 part) + *śuddha taṅkaṇa* (1 part): *Sarvarogahara* (all disease pacifying) [*Rasakāmadhenu*]
- *vedana-sthāpaka*
- *śothaghna*
- *śūla-praśamana*
- *jvaraghna*
- *svedajanana*

Important references

- CS.Ci. 23.11
- SS.K. 2.5,6,12

Features

As per Ācārya Bhāvamiśra :

सिन्दुवारसदृश्यत्रो वत्सनाभ्याकृतिस्तथा ।  
यत्प्राञ्चै न तरोर्वृद्धवत्सनाभः स भाषितः ॥

BP. Dhātovādivarga 192

- Its leaves resemble those of *sinduvāra* (*nirgunḍī*), its shape is like *vatsa-nābhi* (umbilical cord of calf), other plants fail to grow in its vicinity.
- This is how *vatsanābha* is identified.

## Classification

On the basis of *varṇa* (colour): 3

- *kṛṣṇābha*
- *pāṇḍu* (best)
- *kapiśa*

Habitat

- Himalayan range (at higher altitudes i.e. 5000 feet and above), Nepal, Sikkim and Gadhwal.

## Morphology

- The shrub is about 45 to 90 cm long; its leaves resemble that of Five-leaved chaste (*Vitexnegundo*).
- All parts of the plant are poisonous but the root is most potent.
- The root is 5 to 10 cm long and 1 to 2 cm thick; the dry root is conical in shape, usually shrivelled and with longitudinal wrinkles. It is dark-brown in colour.
- When freshly cut it is whitish and starchy inside but on exposure to air it turns pinkish.
- It is odourless but has slightly sweetish taste.
- It is sparingly soluble in water.

## Chemical composition

- Alkaloid aconitine
- Picroaconitine
- Pseudo-aconitine
- Aconine

Amongst all these, alkaloid aconitine is most potent. Initially, it affects the cardiac muscles and later smooth muscles, skeletal muscles, central and peripheral nervous systems are affected.

## Signs and symptoms

Āyurvedic view:

As per Ācārya Suśruta:

ग्रीवास्तम्भो वत्सनाभे पीतविण्मूत्रनेत्रता । SS.K. 2.12

In *vatsanābha* poisoning, there occurs *grīvāstambha* (neck rigidity) and *pīta viṇ-mūtra-netratā* (yellowness in faeces, urine and eyes).



As per *Rasataranṅinī* :

अविशुद्धं विषं दाहं मोहं हृद्गतिरोधनम् । मृत्युञ्ज ॥

RT. 24.18

Consumption of *aviśuddha* (not purified) *vatsanābha* is manifested by *dāha* (burning sensation), *moha* (stupor), *hṛdgatirodhana* (cardiac arrest) and ultimately death.

As per Modern Toxicology

- severe burning sensation in the mouth, lips, tongue and throat
- tingling sensation and numbness in oral cavity
- profuse salivation
- abdominal pain
- vomiting
- tingling sensation and numbness rapidly spread in whole body
- symptoms resembling paralytic attack
- giddiness
- blurring of vision
- stammering
- generalized weakness
- muscle cramps
- convulsions
- reduced and irregular pulse
- initially constriction of pupils and later dilatation
- fall in body temperature
- death due to ventricular fibrillation.

Fatal dose

- Crude powder - 1 gm.
- Juice - 250 mg
- Tincture - 25 drops
- Alkaloids - 4 mg

Fatal period

- Minimum - 45 minutes
- Maximum - 24 hours

Post-mortem appearance

- Non-specific
- Traces of aconite in abdominal cavity

Medico-legal aspects

- Accidental poisoning
- Commonly used for suicide/homi-cide

- Abortifacient
- Cattle poison
- Arrow poison

Treatment

Āyurvedic management of *vatsanābha* poisoning:

- *Śuddha taṅkaṇa* + *ghṛta* (cow's ghee) for consumption
- Induction of *vamana* (emesis) by consuming large quantity of *ajādugidha* (goat's milk)
- *Haridrā svarasa* + *taṇḍulīya svarasa*
- *Sarpākṣī svarasa* + *śuddha taṅkaṇa* + *ghṛta* (cow's ghee)

As per Modern Toxicology

- Stomach wash (using Tannic acid or Potassium permanganate)
- Novocaine (for cardiac arrhythmias)
- Nor-adrenaline/Mephentine (for low blood pressure)
- Artificial respiration

*Śṛṅgī Viṣa* (*Aconitum chasmanthum*)

Latin name

- ♦ *Aconitum chasmanthum*

Family

- ♦ Ranunculaceae

Āyurvedic description

Synonyms

- ♦ *Śṛṅgī*, ♦ *śiṅgiyā*
- ♦ *śṛṅgīka* ♦ *sindhīyā*

Utility in *Rasaśāstra*

- Due to toxicity it is used for *rasa-bandhana* and to kindle the *bubhūkṣā* (hunger) of *pārada*.

Description

- *Ācārya Bhāvamiśra* is of the opinion that the milk turns reddish if *Śṛṅgī* is tied to the horns of a cow; he quotes -

यस्मिन् गोशृंगं बद्धं दुग्धं भवति लोहितम् । BP

Habitat

- Himalayan range (10,000 to 12,000 feet high).

Morphology

- It is similar to and resembles aconite.



- It is of two kinds -
  - ♦ White variety
  - ♦ Reddish variety
- Smelling of reddish variety causes epistaxis.
- Its root-bulb resembles the udder of cow.
- It is, when dry, greyish in colour.

### Signs and symptoms

Āyurvedic view:

As per Ācārya Suśruta:

शृंगीविषेणांगसाददाहोदरविवृद्धयः ॥ SS.K. 2.15

Śṛṅgīviṣa causes :

- *aṅgasāda* (malaise)
- *dāha* (burning sensation)
- *udaravṛddhi* (abdominal enlargement)

### As per Modern Toxicology

- Similar to *Aconitum ferox*

### Fatal dose

- Similar to *Aconitum ferox*

### Fatal period

- Similar to *Aconitum ferox*

### Post-mortem appearance

- Similar to *Aconitum ferox*

### Medico-legal aspects

- Similar to *Aconitum ferox*

### Treatment

Āyurvedic management of poisoning by Śṛṅgīviṣa:

- *Taṅkaṇa* is an antidote for both *vatsanābha* and *śṛṅgīviṣa*.

### As per Modern Toxicology

- Similar to *Aconitum ferox*

### Haratāla (Yellow arsenic)



Fig. 8.2 : Haratāla (Yellow arsenic)

### English

- Orpiment/ Arsenical gold ore/ Yellow arsenic

### Chemical formula

- $As_2S_3$  (Arsenic trisulphide)

### Hardness

- 1.5 to 2

### Specific gravity

- 3.4 to 3.5

### Āyurvedic description

#### Synonyms

- |                          |                          |
|--------------------------|--------------------------|
| ♦ <i>tāla</i>            | ♦ <i>āla</i>             |
| ♦ <i>naṭabhūṣaṇa</i>     | ♦ <i>pitanaka</i>        |
| ♦ <i>śailūṣabhū-ṣaṇa</i> | ♦ <i>vaṅgāri</i>         |
| ♦ <i>vidālaka</i>        | ♦ <i>kharijūra</i>       |
| ♦ <i>citragandhaka</i>   | ♦ <i>vaṁśakapat-raka</i> |
| ♦ <i>piñjara</i>         | ♦ <i>mallagandhaja</i>   |

#### Classification: 2

- |                           |                            |
|---------------------------|----------------------------|
| ♦ <i>patratāla</i> (best) | ♦ <i>piṇḍatāla</i> (worst) |
|---------------------------|----------------------------|

### Signs and symptoms

Āyurvedic view:

As per *Rasatarāṅgiṇī* :

अविशोधितं तु तालं परिशीलितं प्रकामम् ।

जनयन्त्यनल्पदाहक्षोभप्रकम्पतोदान् ॥

मलिनीकरोति गात्रं प्रकरोति कुष्ठभीतिम् ।

कमनीयतां प्रकामं विनिहन्ति कायजाताम् ॥

अशुद्ध तालकं कुर्याद् रोगान् वातकफोद्धवान् ।

मृत्युशंकाकरान् यस्माद् भिषक् तस्माद्विशोधयेत् ॥

RT. 11.13-15

*Aviśodhita* (not purified) *haratāla*, when consumed, causes *analpa dāha* (profuse burning sensation), *kṣobha* (discomfort), *prakampa* (tremors), *toda* (pricking pain) etc.

Subsequent vitiation of *rakta* causes disfiguring of entire *gātra* (body) and *kuṣṭha* (skin ailment). Complexion of body is destroyed and *rogas* (diseases) of *vāta-kapha* dominance appear.

As per Modern toxicology :

- The symptoms and signs of poisoning are similar to that of arsenic poisoning but in mild and low-grade form.



**Fatal dosage**

- Not confirmed

**Fatal period**

- Not confirmed

**Post-mortem appearance**

- Not specific
- Somewhat similar to arsenic poisoning (in low dose)

**Treatment**

**Āyurvedic management:**

- General measures of poisoning along with measures of arsenic poisoning should be resorted to.
- *Kūṣmāṇḍa svarasa* alongwith *miśrī* (sugar) and powdered *jīraka* is useful in pacifying poisoning due to *haratāla*.

**As per Modern Toxicology :**

- Stomach wash
- Emetics
- BAL
- Calcium disodium versenate
- Penicillamine etc.

**Inorganic Acids/ Mineral acids**

**1. Sulphuric Acid**

**Chemical formula**

- $H_2SO_4$

**Synonym**

- Oil of Vitrol

**Physical appearance**

- It is heavy, oily, colourless, non-fuming etc.

**Signs and symptoms**

- swollen tongue with white coating
- chalky white teeth
- swollen and exfoliated lips
- severe burning sensation in the oral cavity
- dysphagia
- epigastric and retrosternal pain
- brown/black streaks over the cheeks chin etc.
- brownish/blackish vomiting

**Fatal dose**

- In adults - 10-15 ml
- In children - 1.5-1.75 ml

**Fatal period**

- 18 - 24 hrs.

**Post-mortem appearance**

- Corrosion of lips, cheeks, chins etc.
- Dilated pupils
- Cloth stained with brownish colour
- GIT - black, swollen, dried and charred in appearance
- Perforation of stomach etc.

**Medico-legal aspects**

- Accidental poisoning
- Suicidal poisoning
- Vitriolage

**Treatment**

- Stomach wash and emesis are strictly contraindicated
- Milk of magnesia (for neutralization of acid)
- Lime water/ wood ash/ soap and water
- Use of demulcents (milk/ beaten egg white/ starch solution etc.)
- Inj. Morphine (for relieving pain)
- Symptomatic

**2. Nitric Acid**

**Chemical formula**

- $HNO_3$

**Synonym**

- Aqua Forties

**Physical appearance**

- It is a clear, colourless, fuming, heavy liquid with peculiar and choking odour.

**Signs and symptoms**

- yellowish discoloration of tissues
- yellowish staining of cloths and teeth
- lacrimation
- photophobia
- eructations
- perforation of git (less common)
- dyspnoea



**Fatal dose**

- 10 - 15 ml

**Fatal period**

- 18 - 24 hrs

**Post-mortem appearance**

- yellowish staining of tissues
- yellowish staining of cloths
- congestion of larynx, trachea, and broncheal tubes etc.
- oedematous lung

**Medico-legal aspects**

- Accidental poisoning
- Suicidal poisoning

**Treatment**

- Oxygenation (for respiratory distress)
- Management similar to that of Sulphuric acid

**3. Hydrochloric Acid****Chemical formula**

- HCl

**Synonym**

- Muriatic acid/ Spirit of salts

**Physical appearance**

- It is a pungent, colourless, fuming liquid.

**Signs and symptoms**

- irritation of larynx and air passages
- non-corrosion of skin
- reddish brown staining of cloths etc.
- salivation
- convulsion
- delirium
- paralysis
- nausea
- epigastric pain

**Fatal dose**

- 15 - 20 ml

**Fatal period**

- 28 - 30 hrs

**Post-mortem appearance**

- less severe corrosion
- brownish fluid in the stomach

- folds of stomach - brownish, firm, leathery
- inflammation of respiratory passage and lung tissues

**Medico-legal aspects**

- Suicidal poisoning
- Accidental poisoning

**Treatment**

- Same as sulphuric acid

**Organic Acids****1. Carbolic Acid**

Carbolic acid poisoning is known as Carbolism.

**Chemical formula**

- $C_6H_4OH$

**Synonym**

- Phenol/ Hydroxy benzene

**Physical appearance**

- It is colourless, crystalline, peculiar odour, turns pink when exposed to atmosphere.

**Signs and symptoms**

- mild corrosion
- whitish discoloration
- local burning sensation, tingling and numbness
- vomiting of frothy mucus with a strong smell of carbolic acid
- vertigo
- oliguria
- carboluria
- contraction of pupils
- cyanosis

**Fatal dose**

- 10 - 30 ml

**Fatal period**

- 3 - 4 hrs

**Treatment**

- Stomach wash with lukewarm water, soap solution etc.
- Activated charcoal
- Demulcents
- Sodium bicarbonate



- Haemodialysis (in case of renal failure)
- Copious washing of skin (with water/ saline)
- Supportive therapy

#### Post-mortem appearance

- characteristic odour from mouth, nostrils etc.
- white or brownish discoloration of corroded areas
- greenish/ brownish urine
- cerebral oedema
- pulmonary oedema
- congestion of viscera

#### Medico-legal aspects

- Accidental
- Occupational hazard
- Suicidal etc.

### 2. Oxalic Acid

#### Chemical formula

- $C_2H_2O_4$

#### Synonym

- Acid of Sugar

#### Physical appearance

- It is colourless, odourless, prismatic crystals, bitter to taste etc.

#### Signs and symptoms

- burning sensation
- dysphagia
- vomiting ('coffee grounds' vomitus)
- diarrhoea
- tetany and convulsions
- bradycardia
- oxaluria etc.

#### Fatal dose

- 15 - 20 gm

#### Fatal period

- 1 hour

#### Treatment

- Stomach wash
- Calcium gluconate IV
- Demulcents
- Supportive measures

#### Post-mortem appearance

- whitish coloured corroded mucosa
- congestion of brain, liver and kidneys
- signs of corrosion

#### Medico-legal aspects

- Accidental poisoning (very common)
- Suicidal poisoning

### 3. Formic Acid

#### Chemical formula

- $CH_2O_2$

#### Synonym

- Formylic acid/ Methanoic acid

#### Physical appearance

- It is colourless, pungent with penetrating odour.

#### Signs and symptoms

- ◆ burning sensation
- ◆ vomiting
- ◆ drowsiness
- ◆ salivation
- ◆ ulceration
- ◆ dilatation of pupils
- ◆ haemolysis etc.

#### Fatal dose

- 50 - 200 ml

#### Fatal period

- 10 - 24 hrs

#### Treatment

- Gastric lavage
- Activated charcoal
- Dialysis
- Supportive measures
- Ventilation
- Emesis

#### Post-mortem appearance

- Blackish discoloration of mucosa
- Pulmonary oedema

#### Medico-legal aspects

- Accidental poisoning
- Suicidal poisoning

### 4 Alkalies

#### Commonly used

- Ammonium hydroxide - Sodium carbonate
- Potassium carbonate - Sodium hydroxide
- Potassium hydroxide etc.



**Physical appearance**

- white/ colourless powders

**Mode of action**

- Ulceration
- Liquefaction/ Necrosis

**Signs and symptoms**

- ◆ corrosion of tissues/ mucosa
- ◆ dysphagia
- ◆ vomiting
- ◆ hematemesis
- ◆ abdominal pain
- ◆ diarrhoea
- ◆ tenesmus etc.

**Fatal dose**

- 10 - 15 gm

**Treatment**

- Endotracheal tubing
- Oxygenation therapy
- Demulcents
- Irrigation
- Supportive therapy

**Post-mortem appearance**

- brownish/ greying staining of skin, tissues etc.
- inflammation of tissues
- congestion of respiratory tract

**Medico-legal aspects**

- Accidental poisoning
- Occupational hazards
- Suicidal poisoning

**5. Iodine****Chemical formula**

- I

**Physical appearance**

- It is bluish-black, soft and scaly crystals with metallic lustre and unpleasant taste

**Signs and Symptoms**

- ◆ burning sensation in the GIT
- ◆ rhinorrhea
- ◆ conjunctivitis
- ◆ cough
- ◆ salivation
- ◆ yellowish discoloration of stool, skin and mucous membrane etc.
- ◆ metallic taste
- ◆ vomiting
- ◆ diarrhoea

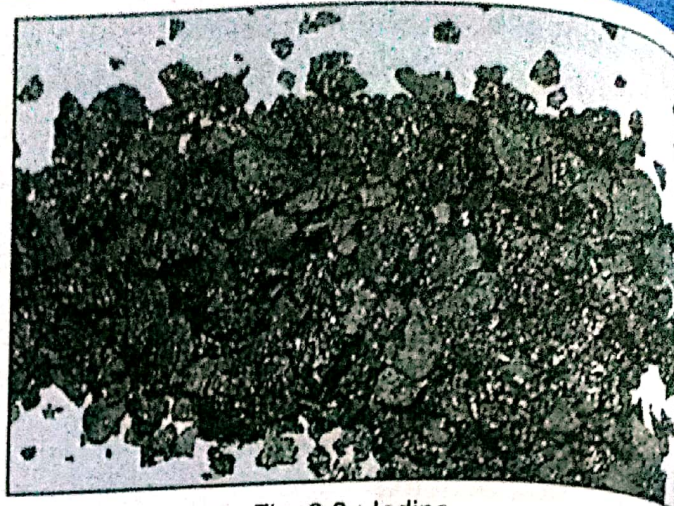


Fig. 8.3 : Iodine

**Fatal dose**

- 2 - 4 gm

**Fatal period**

- 1 to several days

**Treatment**

- Stomach wash
- Irrigation of eyes
- Activated charcoal
- Sodium bicarbonate (for metabolic acidosis)
- Symptomatic management

**Post-mortem appearance**

- Inflamed, excoriated and brownish mucosa
- Fatty degeneration of heart, liver, kidneys etc.
- Oedematous brain

**Medico-legal aspects**

- Accidental
- Iodism (chronic poisoning)
- Occupational hazard

**Inorganic Elements****1. Phosphorus****Chemical formula**

- P<sub>4</sub>

**Varieties - 2**

- White/crystalline
- ◆ Physical appearance - waxy, crystalline, solids, garlicky odour
- ◆ Usage - Fertilizers, insecticides, rodenticides, smoke screens, fire-works etc.



- Red/amorphous
- ♦ Physical appearance - reddish-brown, amorphous, odourless

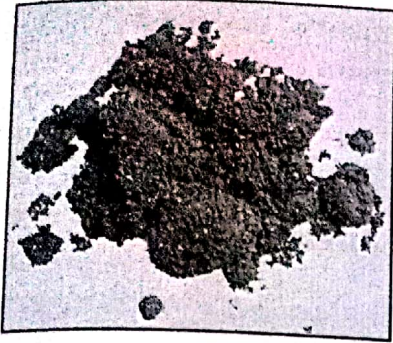


Fig. 8.4 : Phosphorus

**Signs and Symptoms**

- **Acute poisoning**
  - ♦ **First stage (upto 8 hrs)** - Burning sensation in throat and abdomen, profuse thirst, nausea, vomiting, diarrhoea, severe abdominal pain, garlic-like odour in breath and faeces
  - ♦ **Second stage (upto 2-3 days)** - symptom free stage
  - ♦ **Third stage** - nausea, vomiting, diarrhoea, hematemesis, hepatic tenderness, jaundice, pruritus etc.
- **Fulminant poisoning** (on consuming more than 1 gm) - restlessness, delirium, thirst, vomiting, nausea, retching - death within 12 hrs
- **Chronic poisoning** - toothache, bone necrosis, sequestration, osteomyelitis of jaw etc.

**Fatal dose**

- 60 - 120 mg

**Fatal period**

- 2 - 8 days

**Post-mortem appearance**

- Garlicky odour of mouth
- Jaundice
- Sub-cutaneous haemorrhage
- Congestion of affected parts
- Enlargement and fatty degeneration of liver
- Fossy jaw/ glass jaw (in chronic poisoning)

**Medico-legal aspects**

- Accidental poisoning
- Suicidal poisoning
- Homicidal poisoning

**Treatment**

- Gastric lavage (using 1:5000  $KMnO_4$ )
- Activated charcoal
- Vitamin K i.v.
- Bowel evacuation (using magnesium sulphate)
- Avoid - oil, fat
- Symptomatic treatment

**2. Aluminium phosphide**



Fig. 8.5 : Aluminium phosphide

**Abbreviation**

- ALP

**Physical appearance**

- Its greyish-green tablets are available as Celphos, Alphos, Phostoxin etc.

**Signs and Symptoms**

- **Inhalation:** irritation of mucous membranes, dizziness, fatigueness, tightness in the chest, nausea, vomiting, diarrhoea, headache etc.
- **Ingestion:** nausea, vomiting, headache, abdominal pain, hypotension etc.

**Fatal dose**

- 150 mg - 500 mg

**Fatal period**

- 1 - 4 days



**Post-mortem appearance**

- garlic-like odour in mouth, nostrils etc.
- blood-stained froth
- congestion in the mucous membranes of oesophagus, stomach and duodenum
- centrilobular haemorrhagic necrosis of liver etc.

**Medico-legal aspects**

- Suicidal poisoning (very common in India)
- Homicidal poisoning

**Treatment**

- Gastric lavage
- Activated charcoal
- Antacids
- Liquid paraffin
- Magnesium sulphate (to reduce organ toxicity etc.)
- IV fluids
- Sodium bicarbonate (for metabolic acidosis) etc.

**3. Chlorine****Chemical formula**

- Cl

**Physical appearance**

- It is greenish-yellow gas with unpleasant and irritating odour.

**Signs and Symptoms**

- ♦ irritation of the eyes, throat and mucous membranes of respiratory tract
- ♦ cough
- ♦ dyspnoea
- ♦ nausea
- ♦ vomiting
- ♦ spasm of glottis

**Fatal dose**

- 1:1000

**Fatal period**

- 1 - 2 days

**Post-mortem appearance**

- inflammation of respiratory tract
- pulmonary oedema
- rupture of alveolar walls etc.

**Medico-legal aspects**

- Accidental poisoning
- Industrial exposure

**Treatment**

- Shifting from the site
- Treatment of shock
- Treatment of circulatory collapse
- Treatment of pulmonary oedema

**Asphyxiants****1. Ammonia****Chemical formula**

- $\text{NH}_3$

**Features**

- It is highly water soluble, extremely irritating gas with asphyxiating odour.

**Signs and Symptoms**

- acute respiratory irritation
- lacrimation
- cough
- dyspnoea
- oedema of glottis and larynx
- sloughing of bronchial mucosa
- coma etc.

**Fatal dose - 5 - 10 ml****Fatal period - Rapid****Post-mortem appearance**

- Congestion in respiratory tract
- Oedema of glottis and larynx etc.

**Medico-legal aspects**

- Suicidal poisoning
- Robbery (ammonia spray)

**Treatment**

- Intubation
- Oxygenation therapy
- Broncho-dilators
- Irrigation and washing in case of contact poisoning
- Water/ milk

**2. Methyl isocyanate (MIC)****Features**

- It is pungent, sweetish smelling, stable liquid at  $27^\circ\text{C}$  and gaseous at  $31^\circ\text{C}$ , highly volatile and inflammable.



### Signs and Symptoms

- acute irritation of the eyes
- lacrimation
- blurred vision
- intense burning sensation in throat
- chest pain
- laboured breathing etc.

Fatal period - 5 - 6 days

### Post-mortem appearance

- Pulmonary oedema
- Cerebral oedema
- Asphyxia etc.

### Medico-legal aspects

- Accidental poisoning
- Industrial accident

### Treatment

- Sodium thiosulphate
- Copious washing of eyes and skin
- Oxygenation
- Broncho-dilators
- Symptomatic management

### 3. Carbon monoxide (CO)

#### Features

- Carbon monoxide (CO) is a colourless, odourless, tasteless, non-irritating gas.

#### Signs and Symptoms

- depend on the limit of blood saturation
- respiratory distress
- circulatory distress
- anemia
- mild headache
- vomiting
- nausea etc.

#### Fatal dose

- 70% or more

#### Fatal period

- Rapid (due to respiratory arrest)

#### Post-mortem appearance

- Bright cherry red skin
- Blood, viscera - all cherry red coloured
- Froth from mouth and nose
- Haemorrhages seen in lungs, GIT, heart, brain etc.

### Medico-legal aspects

- Suicidal poisoning (very common in Western countries)
- Accidental poisoning

### Treatment

- Respiratory care
- Blood transfusion
- i.v. Mannitol
- s.c. Adrenaline and Coramine

### 4. Carbon dioxide (CO<sub>2</sub>)

#### Features

- It is colourless and odourless gas.

#### Signs and Symptoms

- headache
- giddiness
- ringing in the ears
- sense of tightness in the chest region
- gradual loss of muscle power
- drowsiness
- unconsciousness etc.

#### Fatal dose

- More than 30% conc.

#### Fatal period

- Varies

#### Post-mortem appearance

- Pale and swollen lips
- Dilated pupils
- Frothing from the mouth and nostrils
- Signs of asphyxia

#### Medico-legal aspects

- Accidental poisoning

#### Treatment

- Shifting the patient to a fresh air
- Artificial respiration
- Symptomatic management

### 5. Hydrogen sulphide

#### Chemical formula

- H<sub>2</sub>S



**Features**

- It is a colourless, heavy, rotten egg like smell and flammable gas.

**Signs and Symptoms**

- ♦ feeling of dullness
- ♦ giddiness
- ♦ cough
- ♦ nausea
- ♦ laboured breathing
- ♦ lacrimation
- ♦ photophobia etc.

**Fatal dose**

- 0.1 - 0.2%

**Fatal period**

- Immediate

**Post-mortem appearance**

- Signs of asphyxia
- Greenish-purple coloured blood and viscera

**Medico-legal aspects**

- Accidental (sewer gas)

**Treatment**

- Shifting into fresh air
- Artificial respiration
- Oxygenation etc.

**6. Cyanide****Occurrence**

- As a gas: Hydrogen cyanide
- As a liquid: Hydrocyanic acid
- As a solid: Salts of Cyanide

**Chemical formula**

- HCN

**Signs and Symptoms**

- most rapid of all the poisons

- loss of consciousness
- respiratory arrest

**Fatal dose**

- Acid: 50 - 60 mg
- Sodium cyanide/ Potassium cyanide: 200 - 300 mg
- Air conc.: 1:500

**Fatal period**

- Immediate

**Post-mortem appearance**

- bright, glistening and prominent eyes
- dilated pupils
- froth from mouth
- bitter almond odour
- brick-red coloured skin etc.
- pulmonary oedema
- cerebroedema etc.

**Medico-legal aspects**

- Suicidal poisoning
- Accidental poisoning

**Treatment**

- Ventilation
- Oxygenation
- Cardiac monitoring
- IV fluids
- Amyl nitrite
- Sodium nitrite
- Sodium thiosulphate etc.





## UPA VIṢA (MILD POISONS)

### LEARNING OBJECTIVES

- Upaviṣas
  - Rasendra sara sangraha - 7
  - Rasatarangini - 11
- Kucala or visatinduka is a spinal irritant.
- No toxicity when kucala seeds swallowed without chewing.
- Ophisthotonus and Emprosthotonus are typical features of Kucala poisoning.
- In opium the content of marijvana is maximum.
- Cheyne - stokes breathing found in opium poisoning.
- Wide dilatation of pupils found in Datura poisoning.
- Bhanga, ganja, carasa & marijuana are various parts of one plant.
- Manovibhrama & Kantha suskata are found in bhanga poisoning
- Sphota (blister formation) over tvaca (skin) found in bhallataka poisoning.
- Palasa is antidote of arka - visa
- Langali is abortifacient (garbha patak)
- Karavira is cardiac poison

### Definition of Upaviṣa (mild poisons)

Drugs, other than viṣa (poisons), capable of causing intoxication - on ingestion - in a healthy individual are termed 'upaviṣas (mild poisons)'. In comparison to viṣa (poisons), these are mild in effect and strength; these possess attributes of viṣa (poisons) but in milder form.

### Number of upaviṣa (mild poisons)

Rasendrasārasaṅgraha enumerates seven kinds of upaviṣa (mild poisons); he quotes

अर्कसेहुण्डधूस्तूरलांगलीकरवीरकाः ।

गुञ्जाऽह्निफेनावित्येताः सप्तोविषर्जातयः ॥ RSS. 1.385

- Arka (Calotropis procera)
- Sehuṇḍa (Euphorbia nerrifolia)
- Dhūstūra (Datura metel)
- Lāṅgalī (Gloriosa superba)
- Karavīra (Nerium indicum)
- Guñjā (Abrus precatorius) and
- Ahiphena (Papaver somniferum).

Rasatarangini has enlisted eleven upaviṣa (mild poisons); he quotes

विषतिन्दुकबीजं च त्वहिफेनञ्च रेचकम् ।  
धत्तूरबीजं विजया गुञ्जा भल्लातकाह्वयः ॥  
अर्कक्षीरं स्नुहीक्षीरं लांगली करवीरकम् ।  
समाख्यातो गणोऽयं तु बुधैरुपविषा भिद्यः ॥

RT. 24.163-164

Bīja (seeds) of Viṣatinduka (Strychnos nux vomica), Ahiphena (Papaver somniferum), Recaka (Croton tiglium), bīja (seeds) of Dhattūra (Datura metel), Vijayā (Cannabis sativa), Guñjā (Abrus precatorius), Bhallātaka (Semecarpus anacardium), Arka-kṣīra (latex of Calotropis procera), Snuhī-kṣīra (latex of Euphorbia neriifolia), Lāṅgalī (Gloriosa superba) and Karavīra (Nerium indicum/Thevetia neriifolia). (See Table No : 9.1)

### Kucalā or Viṣatinduka (Nux vomica)

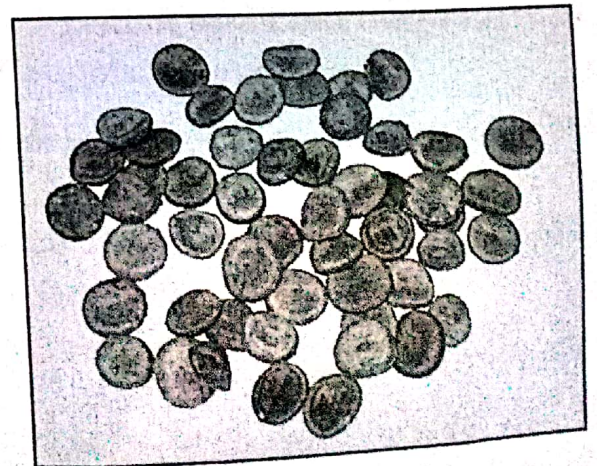


Fig. 9.1 : Nux vomica



Table 9.1 : Upaviṣas (mild poisons) according to Rasendrasārasaṅgraha & Rasataranṅgiṇī

Upaviṣas (mild poisons) according to Rasendrasārasaṅgraha	Upaviṣas (mild poisons) according to Rasataranṅgiṇī
Anu (Calotropis procera)	Viṣatinduka (Strychnos nux vomica)
Sabunja (Euphorbia nerifolia)	Ahiphena (Papaver somniferum)
Dhuskura (Datura metel)	Recaka (Croton tiglium)
Lāngali (Gloriosa superba)	Dhattūra (Datura metel)
Karavira (Nerium indicum)	Vijayā (Cannabis sativa)
Guñjā (Abrus precatorius) and	Guñjā (Abrus precatorius)
Ahiphena (Papaver somniferum).	Bhallātaka (Semecarpus anacardium)
	Arka (Calotropis procera)
	Snuhi (Euphorbia nerifolia)
	Lāngali (Gloriosa superba)
	Karavira (Nerium indicum/ Thevetia nerifolia)

**Latin name**

- Strychnos nux-vomica

**English name**

- Nux vomica/ Poison nut tree/ Nux vomica tree

**Family**

- Loganiaceae

**Āyurvedic description**

**Synonyms**

- ◆ Kucelaka                                     ◆ Kāraskara
- ◆ Kucala                                       ◆ Ramyaphala
- ◆ Kucilā                                       ◆ Kupāka
- ◆ Viṣatunda                                   ◆ Viṣamuṣṭikā
- ◆ Tindu   ◆ Viṣamuṣṭi
- ◆ Tindeka                                     ◆ Kālakūṭa
- ◆ Viṣatinduka

**Rasa**

- Tikta (pungent) and kaṭu (bitter)

**Guṇa**

- Rūkṣa (dry), laghu (light), tīkṣṇa (sharp)

**Virya**

- Uṣṇa (hot)

**Vipāka**

- Kaṭu (bitter)

**Varga**

- Phalaviṣa (fruit poison)

**Category**

- Spinal irritant

**Habitat**

- It is found in the foothills of Himalaya, South India, Cōromandal coast, Orissa etc.

**Morphology**

- It belongs to the family Loganiaceae.
- The tree is about 12-13 meters tall and its trunk is crooked and thick.
- The branches are thin but sturdy.
- The leaves, greenish in colour, are broad, shining, approx. 5 to 12 cm in length etc.
- Flowers - These are greenish-white, numerous etc.
- Fruits - These are, 2.5 to 7.5 cm in length, globose and slightly rough with shining surface. The colour changes to orange-red on ripening.
- Seeds - These, disc shaped (approx. 2 cm in diameter) with central depression, are ash-grey in colour with shining surface and short satiny hairs. These are the most toxic part of the plant.

**Active principles**

- Strychnine, Brucine, Vomisine, Kajine, Novacine, Iso-strychnine etc.

**Signs and Symptoms**

No toxicity is seen if the seeds are swallowed completely without chewing; toxicity is seen



only when ingested after chewing. The signs and symptoms of toxicity are -

- bitter taste in mouth
- feeling of uneasiness
- restlessness
- difficulty in swallowing
- convulsions
- increased rigidity of muscles
- ophisthotonus
- emprosthotonus
- muscular twitching etc.

#### Fatal dose

- 50 - 100 mg

#### Fatal period

- 1 - 2 hrs

#### Differential diagnosis

- Tetanus
- Epilepsy
- Hysteria

S.No.	Strychnine poisoning	Tetanus
1.	History of eating something pungent substance	History of injury or pricking of needle, nails etc.
2.	Abrupt manifestation of symptoms	Gradual manifestation of symptoms
3.	Convulsion affects all the muscles simultaneously	Convulsion initiates from muscles of lower jaw and neck
4.	Muscles relax during consecutive convulsions	Muscle remain rigid at all times
5.	Either patient recovers rapidly or dies within few hours	Death is not before 24 hours
6.	Chemical analysis confirms poisoning	Chemical analysis is insignificant

#### Fatal dosage

- Raw powder (in adults) - 2 gm
- Strychnine (in adults) - 15 - 30 mg
- Strychnine (in children) - 10 mg

#### Fatal period

- 1 to 2 hours (may extend upto 5 to 6 hours)
- Within few minutes (in case of intravenous poisoning with strychnine)

#### Post-mortem findings

- Signs of asphyxia
- Rigor mortis appears early
- Haemorrhages under the peritoneal coat of stomach
- Congestion in mucosa of stomach and duodenum
- Congestion in lungs, kidneys, liver, brain, spinal cord etc.

#### Medico-legal aspects

- Accidental poisoning
- Suicidal poisoning (rare, due to painful death)
- Homicidal poisoning
- Aphrodisiac use

#### Treatment

- **Isolation** - Patient should be kept isolated in a dark room devoid of factors aggravating the convulsions.
- **Anaesthetic agents**
  - ♦ Chloroform
  - ♦ Barbiturates
- **Gastric lavage**
  - ♦ With Potassium permanganate (KMnO<sub>4</sub>) solution (1:1000) or warm water
- **Sedatives**
  - ♦ Potassium bromide
  - ♦ Chloral hydrate
- **Anti-convulsants**
  - ♦ Morphine
  - ♦ Pethidine
- **Anti-dotes**
  - ♦ Barbiturates
  - ♦ Phenobarbitone sodium (500 - 700 mg in 10 ml distilled water)
- **Supportive measures**
  - ♦ Artificial respiration
  - ♦ Oxygen therapy

#### Important formulations of *Kucalā* or *Viṣatinduka* (Nux vomica)

- ♦ *Agnitundī vaṭī*
- ♦ *Śūlanirmūlana rasa*
- ♦ *Kāraskarādi yoga*
- ♦ *Lakṣmīvilāsa rasa*
- ♦ *Navajīvana rasa*
- ♦ *Suptivātāri rasa*
- ♦ *iṣatinduka vaṭī*



Pharmaco-therapeutics of *Kucalā* or *Viṣatinduka* (*Nux vomica*)

As per Ācārya Bhāvamiśra :

कुपीलुः शीतलं तिक्तं वातलं मदकृत्स्नधु ।  
परं व्यधाहरं ग्राहि कफपित्तास्रनाशनम् ॥

Bhāvaprakāśa āmrādīphalavarga 68

**Ahiphena (opium)**

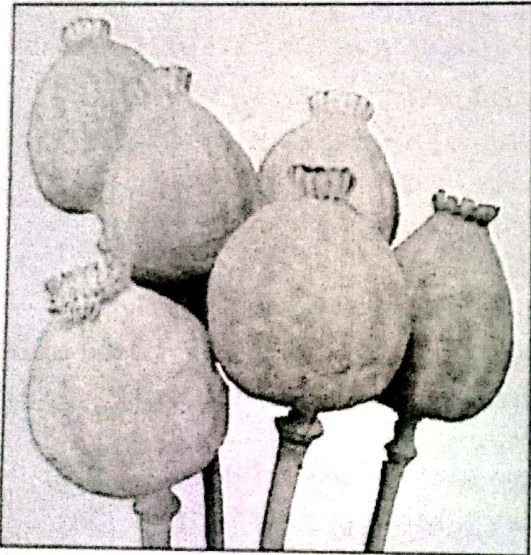


Fig. 9.2 : Ahiphena (opium)

Latin name *Gora* - ओंखरी — केंक्याटी

▪ *Papaver somniferum* हरितक्याटी - मद्यव निंदू

English name अहिफनाटी — आयुर्वेद सिदाहू

▪ Opium/ Poppy seeds

Family

▪ Papavaraceae

Āyurvedic description

Synonyms

- Ahiphena
- Aphena
- Niphena
- Ahiphenaka
- Āphūka
- Phaniphena
- Nāgaphena
- Āphima
- Aphū
- Amala
- Aphūṇa
- Khasaphalakṣīra

Rasa 54B

▪ Tikta (pungent) and kaṣāya (astrin-gent)

Guṇa

▪ Laghu (light), rūkṣa (dry), sūkṣma (subtle), vyāvāyī (all-pervading prior to digestion), vikāsi (slackening)

Vīrya

▪ Uṣṇa (hot)

Vipāka

▪ Kaṭu (bitter)

Prabhāva Neurotic Cellulosa Somniferus

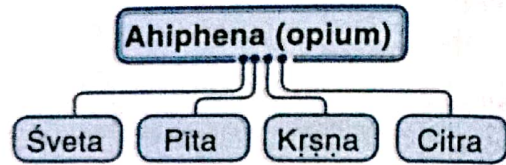
▪ Mādaka (intoxicating), Nidrajanana

Varga

▪ Upaviṣa (mild poison)

Classification

▪ Four kinds based on colour :



Kṣupa (capsule)

▪ khākhāsa or poṣṭā (poppy capsule)

Phala (fruit)

▪ doḍā

Phala tvak (fruit peel)

▪ poṣṭa (धातूनां शोषक रूक्षमदकृद्वाग्विवर्धनम् । BP)

Bīja (seeds)

▪ poṣṭadānā or khasakhasa or khākhāsa tilā (poppy seeds)

Phalakṣīra (exudate/ latex)

▪ ahiphena

Śodhana vidhi (purification methods)

▪ Ahiphena, mixed in water and filtered through cloth, should be thickened on a flame; after this twenty one bhāvanas (titrution) of ārdraḥ svarasa (ginger juice) should be given. This purifies the Ahiphena.

Category

▪ CNS depressant

Active principles

▪ Morphine, codeine, thebaine, Narcotine, papavarine etc.

Habitat

▪ Cultivated in Malwa region of Madhya Pradesh (especially Mandsaur & Neemuch districts); some parts of Bihar, Punjab etc.



### Morphology

- Opium belongs to the family Papaveraceae. It is cultivated worldwide.
- It is an annual herb with height reaching upto 2.75 meters.
- The stem is erect, herbaceous, green, cylindrical and hairy.
- The leaf is simple, alternate, sessile, lobed etc.
- The flower is bisexual, complete, large, showy, red or white in colour.
- The fruit is small and is either white or black.
- The unripe fruit capsule is incised in raw stage and left overnight. Next morning the accumulated latex is scrapped and collected. This is known as 'raw opium'.

### Signs and Symptoms of poisoning

As per *Āyurveda*:

अहिफेने मूर्धगुरुता भ्रमाध्मानमेव च ।  
कृच्छ्रासो भवेदोष्ठमुखनेत्रेषु कृष्णता ।  
अतिस्वेदोऽङ्गशैथिल्यं शैत्यं स्याद्धस्तपादयोः ॥

*Anupānāmāñjarī*

Poisoning by *Ahiphena* is exhibited by following signs and symptoms:

- mūrdha gurutā* (heaviness of head region)
- bhrama* (giddiness)
- ādhmāna* (abdominal distension)
- śvāsa-kṛcchratā* (dyspnoea)
- kṛṣṇatā* (blackishness) of *oṣṭha* (lips), *mukha* (mouth) and *netra* (eyes)
- ati sveda-pravṛtti* (profuse sweating)
- aṅga-śaithilya* (laxity of body)
- śītatā* (coldness) of *hasta* (hands) and *pāda* (feet).

### As per Modern Toxicology

In opium the content of morphine is maximum; therefore poisoning by opium means poisoning by morphine.

The symptoms begin to present within an hour of consumption. If parenterally administered then the symptoms are seen within minutes.

It directly affects the central nervous system (CNS) and its toxicity has three stages -

- Stage of excitement,
- Stage of stupor and - Giddiness / Drowsiness

- Stage of narcosis. (Cerebral unconscious)

#### ♦ Stage of excitement:

- increased sense of well-being
- increased mental activity
- restlessness
- hallucination
- flushing of face
- palpitation

#### ♦ Stage of stupor:

- headache
- nausea
- vomiting
- giddiness etc.

#### ♦ Stage of narcosis:

- contraction of pupils
- fall in body temperature
- cyanosis
- cheyne-stokes breathing

Fatal dose उमे मा - 1/4 - 1 Ratti - 8

- Opium - 2 gm
  - Morphine - 200 mg
  - Codeine - 500 mg
  - Tincture - Herbaine - 50mg  
Tecadine - 1gm
  - ♦ 10 ml (for adults)
  - ♦ 1 to 3 drops (for children)
- 1/4 - 1/2 Ratti - Seeds. (असखत)

### Fatal period

- 6 - 12 hours

### Post-mortem appearance

- Signs of asphyxia
- Cyanosis of face and nails
- Froth at the mouth and nostrils etc.

### Medico-legal aspects

- Chronic poisoning (Morphinism/ Morphinomania)
- Suicidal poisoning
- Accidental poisoning
- Paediatric poisoning
- Cattle poisoning

### Treatment

As per *Āyurveda*:

*Āyurvedic* classics advocate the usage of following in the management of poisoning due to *ahiphena* -



- Fresh milk of cow and its ghee for consumption
- *Bṛhatī svarasa* (1 pala) with *go-dugdha* (cow's milk) daily
- *Jaharamoharā piṣṭī*, *candrodaya rasa*, *kastūri* etc. can be used.

#### As per Modern Toxicology

- Stomach wash (with  $KMnO_4$ )
- Endotracheal clearance
- Lethidrone 10 mg i.v.
- Amiphenazole 30 mg i.v.
- Stimulants (e.g. Adrenaline, Coramine etc.)
- Oxygenation
- Artificial respiration
- Maintaining the body temperature with hot bags and blankets etc.
- Use of antidotes - Nalorphine hydrobromide (5 mg i.v.) and Amiphenazole.

#### Important formulations of *Ahiphena* (opium)

- *Ahiphenāsava*
- *Karpūra rasa*
- *Nidrodaya rasa*
- *Sindūrabhūṣaṇa rasa*
- *Vedanāntaka rasa*

#### Pharmaco-therapeutics of *Ahiphena* (opium)

As per *Kavirāja Sadānanda Śarmā* :

अहिफेनं सुतिक्तं तु निद्राजनकमुत्तमम्।  
 ग्राहि चैव विशेषेण वेदनाविनिवारणम्॥  
 सन्निपातप्रशमनं तथा वमिनिषूदनम्।  
 पुरातनं नवं वापि विनिहन्त्यतिसारकम्॥

*Rasatarāṅgiṇī* 24.243-244

#### *Jayapāla* or *Recaka* (*Croton tiglium*)

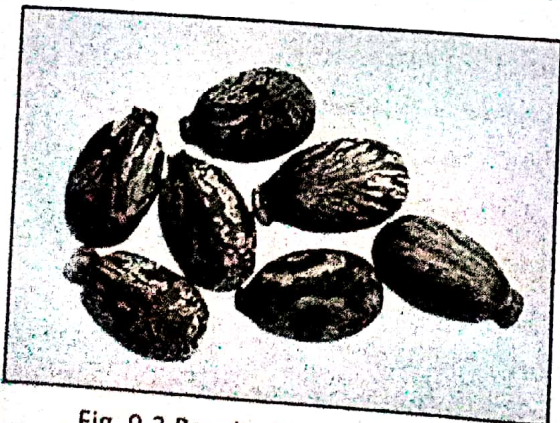


Fig. 9.3 *Recaka* (*Croton tiglium*)

Latin name *Gone* → गुणवर्ण - शा. प्र.

▪ *Croton tiglium* अणुवर्ण - कर्णवर्ण

English name हरितकण्ठी - शरीर निरोग

▪ Purging croton

Family २. जी. वि - ६६८

▪ Euphorbiaceae क ह क ह जण

Āyurvedic description Colled as →

Synonyms *Croton seeds*, *Purgative seeds*

♦ *dravantibīja*

♦ *dantibīja*

♦ *jayapāla*, *Malagrohī*, *Rechaka*, *Sonaka*

♦ *jepāla*, *Dantibeeja*, *tintiḍiphala*

Varga *Dravantibeeja* *Jamaigata*

▪ *phala viṣa* (fruit poison)

Category Poisonous Part - *Beeja*, *Garbhanṭa*

▪ Organic Irritant poison

Active principles

▪ Crotonoleic acid, crotonol etc. *Crotonin*

Habitat

▪ It is found in abundance in states of Assam, Bengal and other parts of India.

Morphology

- The tree is small and evergreen; it measures upto 5 - 7 meters in height.
- Branches are small and hairy.
- Leaves are 4 to 10 cm long, broad, egg-shaped etc.
- Flowers are greenish-yellow.
- Seeds are oval, dark brown with longitudinal lines and are small sized and yield croton and crotonoside.
- The oil (derived from seeds) is brown, viscid with unpleasant odour and acid and burning taste.

Signs and Symptoms

As per *Āyurveda* :

दन्तीविषातियोगे तु वान्तिभ्रान्तिश्च रेचनम्।

शूलाटोपौ भृशं स्वेदः भवेद्दौर्बल्यमेव च॥

*Anupānamañjarī*

Poisoning by *jayapāla* or *recaka* (*Croton tiglium*) is exhibited by following signs and symptoms:

▪ *vānti* (vomiting)

▪ *bhrānti* (giddiness)



- *recana* (diarrhoea)
- *śūla* (colic)
- *āṭopa* (abdominal distension)
- *bhṛśam sveda* (profuse sweating)
- *daurbalya* (weakness or fatigueness).

#### As per Modern Toxicology

1. burning sensation in GIT
2. vomiting
3. purging
4. salivation
5. blood in stools
6. vertigo
7. collapse

Fatal dose → Seeds → 2 to 4

- Adults *Taila* → 20 drops
- ◆ Seeds: 4 in number
- ◆ Oil: 15 - 30 drops
- Children
- ◆ Seeds: 1 in number
- ◆ Oil: 3 - 4 drops

#### Fatal period

- 4 - 5 hrs

#### Post-mortem appearance

- Congestion, inflammation and erosion of mucosa of stomach and intestines

#### Medico-legal aspects

- Accidental poisoning
- Suicidal poisoning
- Homicidal poisoning
- Arrow poisoning (by forest dwellers)

Treatment Antidote → Lemon Juice

As per *Āyurveda* :

धान्यकं सितया युक्तं दधिना सह यः पिबेत् ।  
छन्ति बीजविकारस्य निवृत्तिस्तस्य जायते ॥

*Anupānamañjarī*

- Consumption of *dhānyaka*, *sitā* (sugar) and *dadhi* (curd).
- If not available, warm water should be given for drinking.
- Small quantity (equal to 2 or 3 grains of rice) of opium followed by ghee mixed milk can be given to stop the diarrhoea.

#### As per Modern Toxicology

- Stomach wash (KMnO<sub>4</sub> solution 1:1000)
- Demulcent
- Symptomatic management

#### Important formulations of *jayapāla* or *recaka* (*Croton tiglium*)

- *Aśvakañcukī rasa*
- *Añjanabhairava rasa*
- *Ichābhedī rasa*
- *Jalodarāri rasa*
- *Jvarāri rasa*

#### Pharmaco-therapeutics of *jayapāla* or *recaka* (*Croton tiglium*)

As per *Kavirāja Sadānanda Śarmā* :

जयपालो मतस्तिक्तो विरेचनकरः परम् ।

जलोदरप्रशमनो नवज्वरनिबर्हणः ॥

कृमिहारी कुष्ठहरो वातश्लेष्मनिषूदनः ।

वान्तिकृत्पित्तजननो वृश्चिकादिविषप्रणुत् ॥

*Rasataranṅinī* 24.318-319

#### *Dhattūra* (*Datura metel*)

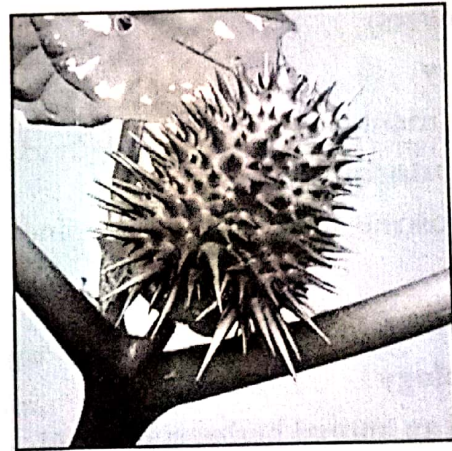


Fig. 9.4 : *Dhattūra* (*Datura metel*)

#### Latin name

- *Datura metel*

#### English name

- *Datura*/ Thorn apple

#### Family

- Solanaceae

#### *Āyurvedic* description

#### Synonyms

- ◆ *dhūttūrā*
- ◆ *kanaka*
- ◆ *kitava*
- ◆ *kaṇṭakaphala*
- ◆ *unmatta*
- ◆ *śivaśekhara*



- ◆ dhūrta
- ◆ devatā

- ◆ tūri
- ◆ mahāmohi

#### Rasa

- tikta (pungent) & kaṭu (bitter)

#### Guṇa

- laghu (lightness), rūkṣa (non-unctuous), vyavāyi (all-pervading prior to digestion) and vikāsi (slackening)

#### Vīrya

- uṣṇa (hot)

#### Vipāka

- Kaṭu (bitter)

#### Prabhāva

- mādaka (intoxicating)

#### Varga

- phala viṣa (fruit poison)

#### Classification

- *Datura alba* (white flowered)
- *Datura niger* (blackish/brinjal coloured flowers)

#### Category

- Deliriant poison

#### Active principles

- Hyoscine, hyosciamine, atropine etc.

#### Habitat

- All over India

#### Morphology

- It is an annual herbaceous plant.
- It grows upto 12 feet in height.
- Leaves are light, dull green colour with slightly serrated edges.
- Branches are smooth, violet or dark purple blue.
- Flowers are funnel-shaped, fragrant, either white, yellow or violet in colour.
- Fruit is nearly an inch long and 1.5 inches in diameter. It bears thorns on its surface and is bent at the edges.
- Seeds are kidney bean shaped and yellowish-brown in colour.

#### Signs and Symptoms

As per *Āyurveda* :

धूर्तबीजेऽतितृष्णा स्याद् भ्रमः स्वेदः प्रलापकः ।  
मूर्च्छातिकृच्छ्रश्वासश्च मोह आक्षेपकस्तथा ॥

Anupānamāñjarī

Signs and symptoms of poisoning due to seeds of *dhūttūrā* are:

- *atitrṣṇā* (non-satiating thirst)
- *bhrama* (giddiness)
- *svedapravṛtti* (profuse sweating)
- *pralāpa* (delirium)
- *mūrcchā* (fainting)
- *atikṛcchra śvāsa* (labour breathing)
- *moha* (stupor)
- *ākṣepaka* (convulsions).

#### As per Modern Toxicology

- dryness of mouth and throat
- dysphagia
- difficulty in speech
- dilatation of cutaneous blood vessels
- dilatation of pupils
- delirium etc.

#### Effects

- The alkaloids of *datura* initially stimulate the higher centres of the brain and then followed by motor centres and finally cause depression and paralysis of vital centres of the medulla.

#### Fatal dose

- 600 mg - 1 gm (100 - 125 seeds)

#### Fatal period

- 24 hrs

#### Post-mortem appearance

- Wide dilatation of pupils
- Lividity
- Well-developed hypostasis
- Congestion in internal organs etc.

#### Medico-legal aspects

- Stupefying agent (by mixing with food or with smoke)
- Accidental poisoning etc.



**Treatment**

As per *Āyurveda* :

- Juice of *vṛntāka phala* (in dose of 1 *pala*) for consumption
- *Go-dugdha* (cow's milk) along with *ghṛta* (ghee) and *śarkarā* (sugar) -

गोदुग्धं प्रस्थमेकं तु शर्करायाः पलद्वयम् ।  
तस्य पानाद्विषं याति घत्तूरस्य च निश्चितम् ॥

*Anupānamañjarī*

मोहे तु घत्तूरकखादेनोत्थे सशर्करं क्षीरमुशन्ति वैद्याः ।

*Rājamārttaṇḍa*

- In emergency, if above mentioned are unavailable, then make the patient drink water mixed with salt; this helps in emesis of gastric contents.

As per **Modern Toxicology**

- Stomach wash (using weak solution)
- Purgation (in case of delayed management)
- Cold water irrigation over the head
- Pilocarpine nitrous/ Escerine/ Physostigmine
- Diuretics
- Symptomatic management

**Important formulations of Dhattūra**

(*Datura metel*)

- *Kanakāsava*
- *Pralāpāntaka rasa*
- *Unmādagajāṅkuśa rasa*

**Pharmaco-therapeutics of Dhattūra**

(*Datura metel*)

As per *Kavirāja Sadānanda Śarmā* :

घत्तूरः कटुकश्लोष्णस्तथा शोथनिषूदनः ।

कृमिघ्नः कुष्ठशामनो विशेषाज्ज्वरनाशनः ॥

परं त्वग्दोषशामनस्तथा कण्डूतिकापहः ।

भ्रमकृन्मोहजननः समाख्यातो भिषग्वरैः ॥

*Rasataraṅgiṇī* 24.350-351

**Bhaṅgā (Cannabis indica)**

Latin name

- *Cannabis indica*

English name

- Indian Hemp



Fig. 9.5 : *Bhaṅgā* (*Cannabis indica*)

**Family**

- Cannabinaceae

**Āyurvedic description**

**Synonyms**

- ♦ *būṭī*
- ♦ *siddhi*
- ♦ *bhaṅgā*
- ♦ *bhaṅgī*
- ♦ *mātulānī*
- ♦ *mādinī*
- ♦ *mātikā*
- ♦ *mātulī*
- ♦ *vijayā*
- ♦ *tandrākāriṇī*
- ♦ *bahuvādinī*

**Rasa**

- *tikta* (pungent)

**Guṇa**

- *laghu* (lightness) and *tīkṣṇa* (sharp-ness)

**Vīrya**

- *uṣṇa* (hot)

**Vipāka**

- *Kaṭu* (bitter)

**Prabhāva**

- *mādaka* (intoxicating)

**Nomenclature of various parts**

Nomenclature	Part of plant	% of active principle
1. <i>Bhāṅga</i>	dried leaves and fruit shoots	15%
2. <i>Gāñjā</i>	flower tops of the female plant	15 to 25%
3. <i>Carasa</i>	resin (dope) exuding from the leaves and stems of the plant	25 to 40%
4. <i>Mājūna</i>	sweet prepared using cannabis	

**Category**

- Deliriant poison



**Active principles**

- Cannabinol (15% in bhanga; 25% in ganja and 25-40% in charasa), cannabidiol etc.

**Habitat**

- Found throughout India (upto 1300 metres elevation); specifically found in Uttar Pradesh, Bihar, and Gujarat etc. It is also cultivated.

**Morphology**

- It is an erect, annual and scarcely branched herb (height - 0.8 to 1.5 metres).
- Leaves - Stalked palmate, alternate; measuring - 7.5 to 20 cm in diameter
- Flowers - Pale yellow-green
- Fruits - Ovate flat

**Signs and Symptoms**

As per *Āyurveda* :

विजयायां तु तैमिर्यं मनोविभ्रम एव च ।

अपस्मृतिः प्रलापश्च वान्तिः कण्ठे विशुष्कता ॥

*Anupānamañjarī*

Poisoning due to *bhaṅgā* (*Cannabis indica*) is exhibited by following signs and symptoms:

- *timira* (ophthalmic disorder)
- *manovibhrama* (mental confusion)
- *apasmṛti* (transient loss of memory)
- *pralāpa* (delirium)
- *vānti* (vomiting)
- *kañṭhaśuṣkatā* (dryness of throat).

**As per Modern Toxicology**

Two stages occur :

- Stage of excitement or euphoria
- Stage of narcosis
  - ◆ **Stage of excitement or euphoria**
    - Delightful and sensuous hallucinations
    - Irrelevant laughing and singing
    - Talking at a high pitch
    - Increased appetite and thirst
    - Sleeplessness etc.
  - ◆ **Stage of narcosis**
    - Muscular weakness
    - Lassitude
    - Drowsiness

- Loss of co-ordinated movements
- Dilatation of pupils
- Frail pulse etc.

**Features of Chronic poisoning**

- Loss of appetite
- Loss of libido
- General weakness
  - ◆ Emaciation
  - ◆ Trembling etc.

**Fatal dose**

- *Bhāṅga*: 10 gm/kg body wt.
- *Gāñjā*: 8 gm/kg body wt.
- *Carasa*: 2 gm/kg body wt.

**Fatal period -**

- 12 - 24 hrs

**Post-mortem appearance -**

- Signs of asphyxia

**Medico-legal aspects -**

- Accidental poisoning
- Stupefying poison

**Treatment**

As per *Āyurveda* :

- *Śiraḥsnāna* (head bath) with *atiśītala vāri* (extremely cold water)
- *Go-dugdha* (cow's milk) with *sitā* (sugar) for consumption; as quoted -  
शिरःस्नानं तु कर्तव्यमतिशीतलवारिणा ।  
पयःपानं च सितया विजया विषशान्तिकृत् ॥

*Anupānamañjarī*

**As per Modern Toxicology**

- Inducing vomiting
- Stomach wash
- Cold water irrigation over the head
- Strong tea or coffee for ingestion
- Strychnine HCl s.c.
- Artificial respiration

**Important formulations of *Bhaṅgā* (*Can-nabis indica*)**

- *Jātiphalādi cūrṇa*
- *Madanodaya modaka*
- *Trailokyasammohana rasa*
- *Trailokyavijayā vaṭī*



Pharmaco-therapeutics of *Bhaṅgā*

(Can-nabis indica)

As per *Kavirāja Sadānanda Śarmā* :

भंगा तिक्ता लघुस्तीक्ष्णा ग्राहिणी कफहारिणी ।  
 दीपना पाचिनी चैव पित्तला मदकारिणी ॥  
 भंगा क्षुद्दीपनी चैव ध्वजभंगहरा परम् ।  
 स्वप्नमेहहरा चैव शुक्रस्तम्भनकारिणी ॥  
 निद्राप्रदायिनी कामं कामोद्दीपनकारिणी ।  
 प्रलापनाशिका चैव धनुःस्तम्भहरा तथा ।  
 आन्त्रशूलहरा चैव वृक्कशूलप्रणाशिनी ।  
 पित्तशोषजशूलघ्नी त्वामाशयबलप्रदा ॥  
 अजीर्णजातिसारघ्नी तथाजीर्णनिवारिणी ॥

Rasatarāṅgiṇī 24.399-403

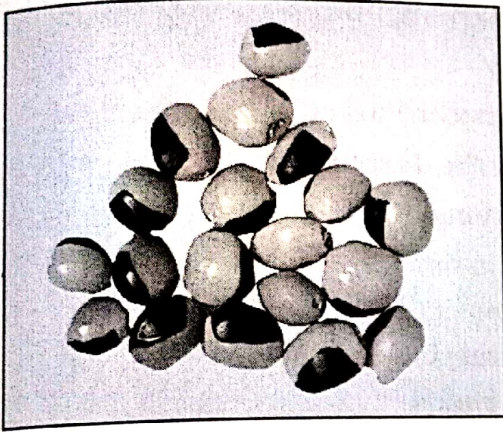
**Guñjā (Abrus precatorius)**

Fig. 9.6 : Guñjā (Abrus precatorius)

Latin name

Gana → गुग्गुच्छादी - भाप्र.

▪ Abrus precatorius

English name

▪ Indian liquorice

Family

▪ Leguminosae Useful Part → Seeds

Āyurvedic description

Seeds - कफ नाशक

Synonyms

पत्र - वात पित्त नाशक

♦ raktā

♦ aruṇā

♦ raktikā

♦ cūḍāmanī

♦ tāmrikā

♦ śikhandaī

♦ kṛṣṇacūrṇikā

♦ kṛṣṇalā

♦ uccaṭā

♦ kākaṇantī

♦ śītapākī

♦ kāmbhojī

♦ bhīllabhūṣaṇikā

Rasa 548

▪ tikta (pungent) &amp; kaṣāya (astringent)

Guṇa

▪ laghu (lightness) and rūkṣa (non-unctuous)

Vīrya

▪ uṣṇa (hot)

Vipāka

▪ Kaṭu (bitter)

Classification

Category

▪ Organic irritant poison

Active principles

▪ Abrin, toxalbumin, abrine, hemog-lutinin, abralin etc.

Habitat

▪ Found throughout the tropics.

Morphology

- It is slender, twinning climber having woody base.
- Leaves - Long, pinnate-leafleted leaves
- Flowers - Pea like, long, purple, pink, yellowish and white in colour.
- Seeds - Egg shaped bright scarlet in colour; it is marked with a large black spot at one end; it is devoid of any taste or odour.

Signs and Symptoms

As per Āyurveda :

गुग्गुविषेण दौर्बल्यं खेभ्यो रक्तसृतिर्भवेत् ।

तन्द्रा मोहश्च गात्रेषु संभवेयुर्व्रणा भृशम् ॥

Anupānamañjarī

Guñjā (Abrus precatorius) poisoning is manifested by:

Shodhana →

- daurbalya (weakness) 3hrs Swedana
- raktasrāva (bleeding) in Gudugdha
- tandrā (fatigue) + Kanji
- moha (stupor)
- gātra vṛaṇa (ulcerations) In Dolayanta

As per Modern Toxicology

- abdominal pain औ. भा. →
- nausea पूज Seeds → 60 to 180mg
- vomiting शु. पत्र → 1 to 3gm
- diarrhoea पूज
- cold perspiration
- trembling of hands etc.

विसृजिका, वमन, कृतीमासारखे वेदना



Fatal Dose → रक्ती-रूप - 120 to 180 mg seeds - 1 to 2  
Inj - Abrin - 0.0091 to 0.002 mg/kg

**Fatal dose**

- 90 - 120 mg (1 - 2 seeds)

**Fatal period**

- 3 - 5 days

**Post-mortem appearance** *site where cells are dead*

- Swelling and necrosis of site of injection
- Congestion of mucosa of stomach etc.

**Medico-legal aspects**

- Cattle poisoning
- Malingering
- Arrow poison etc.

**Treatment** 2] *Godugdha + Sugar + Darakshat + Amlaka + Dadima + Chinchat + Vrksahamla (equal quantity)*

As per Āyurveda- मेघनादरसो ग्राह्यः शर्करायुक्तपानतः । *Taken*

उच्चटाया विकारस्य शांतिः स्यात् ॥ *Anupānamāñjarī*

1] *Meghanāda svarasa* along with *śarkarā* (sugar) should be consumed and followed by *gulping of dugdha* (milk); this is prescription for poisoning due to *guñjā* (*Abrus precatorius*).

**As per Modern Toxicology**

- Inj. Antiabrin
- Excising the site of injection

**Important formulations of Guñjā (*Abrus precatorius*)**

- *Guñjādi tailam prathama*
- *Guñjādi tailam dvitīya*
- *Guñjājīvana rasa*
- *Guñjābhadrā rasa*

**Pharmaco-therapeutics of Guñjā (*Abrus precatorius*)**

As per *Kavirāja Sadānanda Śarmā-*

गुञ्जाबीजं सुविमलं कामोद्दीपनमुत्तमम् ।  
उरुस्तम्भहरं चैव बलसंवर्द्धनं परम् ॥  
गुञ्जापत्रं शोथहरं त्वामवातप्रणाशनम् ।  
तथैव च समाख्यातं वेदनाहरमुत्तमम् ॥  
गुञ्जापलाशनिर्वासो मधुरः कटुकस्तथा ।  
स्वरभेदप्रशमनः शोथघ्नो वेदनाहरः ॥  
गुञ्जामूलं सुमधुरं कफनिस्सारकं परम् ।  
वातपित्तहरं चैव तृष्णाशोथनिवारणम् ॥  
स्वरभेदप्रशमनं तथा वान्तिविनाशनम् ।  
मूत्रकृच्छ्रप्रशमनं बलवर्णकरं परम् ॥  
कासघ्नं शुक्रजननं रुच्यं विषविनाशनम् ॥

*Rasatarāṅginī* 24.446-451

**Bhallātaka (*Semecarpus anacardium*)**

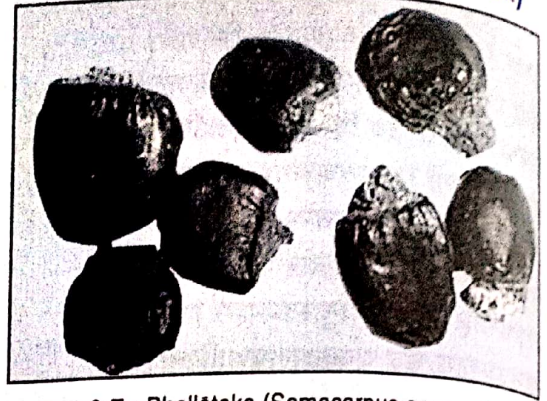


Fig. 9.7 : Bhallātaka (*Semecarpus anacardium*)

**Latin name**

- *Semecarpus anacardium*

**English name** *Gono* → *कुण्डल टिक्टा*

- Marking nut

**Family**

- Anacardiaceae

**Āyurvedic description**

**Synonyms**

- *aruṣkara* *अग्निमुखा*
- *agnika*
- *vīravṛkṣa* *Prabhwa - Arshodhna Shatada*
- *śophakṛt*

**Rasa**

- *kaṭu* (bitter), *tikta* (pungent) and *kaṣāya* (astringent)

**Guṇa**

- *laghu* (lightness), *snigdham* (unctuous-ness) and *tīkṣṇa* (sharpness)

**Vīrya**

- *uṣṇa* (hot)

**Vipāka**

- *madhura* (sweet)

**Category**

- Organic irritant poison

**Active principles**

- Semecarpol, bhilawanol etc.

**Habitat**

- Throughout the warmer parts of India and also in Himalayan range; it is found in Uttar Pradesh, Bihar, Kerala, Andhra etc.



**Morphology**

- Moderately sized deciduous tree
- Leaves - 18 to 60 cm x 10 to 30 cm
- Flowers - Greenish white in colour
- Nuts - 1 inch long, black, ovoid or heart shaped with rough projections at the base; they possess thick pericarp. It contains irritant juice which is brownish, oily acrid but turns black when exposed to atmosphere.

**Signs and Symptoms**

As per Āyurveda-

भल्लातकस्य विषे तापो कोष्ठे भवति सव्रणः ।  
त्वचि स्फोटो भवद्भिन्ने स्रावः कुर्याद् व्रणं पुनः ॥

Anupānamañjarī

- *koṣṭha tāpa* (burning sensation in abdomen)
- *vraṇa* (formation of ulcers) *विसर्प*
- *sphoṭa* (blister formation) over *tvacā* (skin)

**As per Modern Toxicology**

## Local application:

- ♦ irritation,
- ♦ painful blister formation,
- ♦ itching,
- ♦ lesions resemble a bruise etc.

## Ingestion:

- ♦ blisters on throat,
- ♦ severe GIT irritation,
- ♦ dyspnoea,
- ♦ tachycardia, ★ *ओ.मा.* - 1 to 2 Rotti
- ♦ hypotension etc. *Taila* - 1 to 2 drops

**Fatal dose**

- 5 - 10 gm

**Fatal period**

- 12 - 24 hrs

**Post-mortem appearance**

- Blisters in the mouth, throat, stomach etc.
- Congestion of internal organs

**Medico-legal aspects**

- Accidental poisoning
- Abortifacient *chilling*
- In doubt of infidelity the women are punished by applying it on their genital organs
- Irrational use by Quacks
- For faking injuries caused by others etc.

**Treatment**

As per Āyurveda-

रसो हि मेघनादस्य नवनीतसमन्वितः ।  
भल्लातसंभवं शोफं हन्ति लेपेन देहिनाम् ॥

दारुसर्षपमुस्ताभिः नवनीतेन लेपयेत् ।

भल्लातकविकारो अयम् सद्यो गच्छति देहिनाम् ॥

Paste of *cosiundia* (कोयंबीर) → लेप *Anupānamañjarī*

For local application: *कारले* + *दुग्ध* → लेप

- ♦ *meghanāda svarasa* and *navanīta* (butter)
- ♦ *devadāru* + *mustā* + *sarṣapa* + *navanīta* (butter) *ओ.दुंबर त्वक्* → लेप
- ♦ *nārikela tailam* (coconut oil)

**As per Modern Toxicology**

- Stomach wash
- Rinsing of part applied with water etc.
- Application of soothing agents
- Morphine (for relieving the pain)
- Symptomatic management

**Important formulations of Bhallātaka (Semecarpus anacardium)**

- *Amṛta bhallātaka*
- *Bhallātaka rasāyana*
- *Bhallātakāvāleha*
- *Sañjīvanī vaṭī*

**Pharmaco-therapeutics of Bhallātaka (Semecarpus anacardium)**

As per Kavirāja Sadānanda Śarmā-

भल्लातकः कटुस्तिक्त अत्युष्णः कृमिनाशनः ।

रसायनो बलकरो गुल्मार्शोग्रहणीहरः ॥

कुष्ठामयप्रशमनः कफवातोदरापहः ।

विबन्धाध्मानशूलघ्नः श्वासादिगदनाशनः ॥

Rasataranṅinī 24.480-481

**Arka (Calotropis procera)****Latin name**

- *Calotropis gigantea* (*śvetārka*)
- *Calotropis procera* (*raktārka*)

**English name**

- Gigantic Swallow wort/ Madar

**Family**

- Asclepiadiaceae





Fig. 9.8 : Arka (Calotropis procera)

**Āyurvedic description**

**Synonyms**

- gaṇarūpa
- mandāra
- sadāpuṣpa
- alarka
- pratāpasa

Gana  
 अष्टोत्तार - रक्त  
 कर्गीरादी - शब्दकोश, राज  
 ओषधी - कंक्यादी  
 गुडुचादी - भावप्रकाश  
Useful Part -  
 क्षीर, मुत, रक्त, पर्ण

**Rasa** 448

- kaṭu (bitter) & tikta (pungent)

**Guṇa**

- rūkṣa (dry), laghu (light), tīkṣṇa (sharp)

**Vīrya**

- uṣṇa (hot)

Action → Active principles acts as local on GIT.

**Vipāka**

- Kaṭu (bitter)

**Classification**

Classic or Sage	Types	Names
As per Ācārya Suśruta	2	1. Arka 2. Alarka
As per Ācārya Bhāva-miśra	2	1. Śvetārka 2. Raktārka
As per Dhanvantari nighaṇṭu	2	1. Arka 2. Rājārka
As per Rājanighaṇṭu	4	1. Arka 2. Rājārka 3. Śuklārka 4. Śvetamandaraka

**Category**

- Organic irritant poison
- Vegetable Poison

**Active principles**

- Uscherin - Calotropin - Calotoxin - Amyrin - Giganteol

**Habitat**

- Throughout India.

**Morphology**

- There are two varieties :
  - ♦ Calotropis gigantea (purple flowers) and
  - ♦ Calotropis procera (white flowers).
- Height
  - ♦ C. gigantea: 8 to 10 feet
  - ♦ C. procera: 3 to 6 feet
- Leaves - Sessile and sub-sessile, opposite, ovate and cordate at the base.
- Flowers - 3.5 to 5 cm in size; C. gigantea: devoid of fragrance and C. procera: has fragrance.
- Seeds - Compressed, broadly ovoid, with a tufted micropylar coma of long silky hair.

**Signs and Symptoms**

- On application: नेत्रामिच्छा (blindness)
  - ♦ localized redness,
  - ♦ vesication etc.
- On ingestion:
  - ♦ burning pain in throat and stomach,
  - ♦ salivation, ओ.म. -
  - ♦ stomatitis, क्षीर - 0.25 to 0.75 gm
  - ♦ vomiting, पुष्प - 3 to 4
  - ♦ diarrhoea, मुत, रक्त - पुष्प - 0.3 gm
  - ♦ dilated pupils, मुत, रक्त - पुष्प - 0.3 gm
  - ♦ tetanic convulsions etc.

**Fatal dose**

- क्षीर - 3 to 6 gm
- Uncertain रक्त - 3 to 4 gm

**Fatal period**

- 1 - 8 hrs (might extend up to 12 hours)

**Post-mortem appearance**

- Dilated pupils
- Froth at nostrils and mouth
- Stomatitis
- Inflammation of GIT
- Congestion of internal organs (e.g. liver, spleen, kidneys, brain and meninges)



**Medico-legal aspects**

- Infanticide
- Accidental poisoning (common)
- Abortifacient
- Cattle poisoning
- Arrow poison etc.

**Treatment**

No Shodhan Required

As per Āyurveda- चिंचा पात्रक + लक्ष → Drink

- Palāśais an antidote for arka-viṣa (poisoning due to calotropis).
- Ulceration due to contact with latex of arka is treated by washing it with decoction of palāśa and sprinkling of powdered leaves of palāśa.

▪ Decoction of palāśa is given for oral consumption. अर्कगोशिक + water

**As per Modern Toxicology**

- Gastric lavage (with warm water)
- Demulcents (e.g. white of egg)
- Morphine (for pain)
- Stimulants

**Important formulations of Arka (Calot-ropis procera)**

- Arkatailam अर्कतावण
- Arkeśvara rasa प्रवाळ पंचामृत
- Arkavaṭī क्षार गुटिका

**Pharmaco-therapeutics of Arka (Calotropis procera)**

As per Kavirāja Sadānanda Śarmā-

अर्कक्षीरं मतं स्निग्धं तिक्तोष्णं कुष्ठगुल्मनुत्।  
 उदरापहमत्यन्तं रेचनं वान्तिकारकम्॥  
 गुदाङ्कुरप्रशमनं कृमिदन्तव्यथापहम्।  
 क्षारकर्मकरं चैव त्वचि लिप्तं विशेषतः॥

Rasatarāṅgiṇī 24.511-512

As per Ācārya Bhāvamiśra-

अर्कद्वयं सरं वातकुष्ठकण्डूविषव्रणान्।  
 निहन्ति प्लीहगुल्मार्शःश्लेष्मोदरशकृत्कृमीन्॥

BP. Guḍūcyādivarga 69

**Snuhī (Euphorbia antiquorum)**

Latin name

- Euphorbia antiqorum



Fig. 9.9 : Snuhī (Euphorbia antiquorum)

English name

Guṛa → विरेचन - चरक

▪ Common milk hedge

शालमाल्यादी - सुसुत

Family

गुडुची - भाप्र

▪ Euphorbiaceae

अष्टाभाजहर - सुसुत

Āyurvedic description

ओषधी - कैवली

Synonyms सिंहतंडु

• sehuṇḍa	• sudhā
• snuhī	• samantadugdhā
• thāra	• vajrī
• guḍā	• nistrimśapatra

Rasa (448)

Types → अल्पकटक

▪ kaṭu (bitter)

लघुकटक

Guṇa

Prabhava → Teekshna

▪ laghu (light), tikṣṇa (sharp)

Virechana

Vīrya

▪ uṣṇa (hot)

Useful Part → मूल

Vipāka

कोट

▪ kaṭu (bitter)

चरक

क्षीर

Classification

Category

▪ Organic irritant poison

Active principles Euphorbion,

▪ Euphol, nerifoliol, nerifolene, calcium mandelate etc.

Habitat

▪ Common in rocky ground throughout the Indian Peninsula.



Shodhana → Snuhi mixed in chincha patra svarasa & dried under sun

### Morphology

- Large shrub growing upto 20 feet
- Leaves - Fleshy, 6 to 12 inches long.
- Flowers - Yellowish green/ Greenish-yellow, two to seven in single spike
- Fruits - 0.5 inch long.
- Seeds - Minute.

### Signs and Symptoms

As per Āyurveda-

स्नुहीक्षीरातियोगेन कुक्षौ तापो भवेत् भृशम्।  
विरेकवमने स्यात्तां तत्र दीप्ताशयवत्क्रिया ॥

Anupānamañjarī

- *kukṣi-tāpa* (warmth in abdomen)
- *vireka* (diarrhoea) ओ. मा →
- *vamana* (vomiting) मुलचूर्ण - 0.5 to 1 gm

### As per Modern Toxicology

- On application: कांड स्वरस - 5 to 10 ml  
♦ vesication  
♦ inflammation etc. क्षीर - 125-250 mg  
पर्ण स्वरस - 2 to 5 drops
- On ingestion:  
♦ vomiting  
♦ diarrhoea  
♦ convulsions  
♦ coma etc.

### Fatal dose

- Uncertain, स्वरस - 25 to 30 ml

### Fatal period

- 12-18 hrs 3 days

Treatment Paste of chincha patra svarasa

As per Āyurveda- सौक्तिक कामदुष्टा

- *Navanīta* (butter) with *miśrī* (sugar candy) for consumption
- Uncooked milk of buffalo along with *miśrī* (sugar candy)
- Cold water along with *miśrī* (sugar candy)

### As per Modern Toxicology

- Stomach wash
- Symptomatic treatment

### Post-mortem appearance

- Not specific

### Medico-legal aspects

- Abortifacient
- Homicidal poisoning

### Important formulations of *Snuhī* (*Euphorbia antiquorum*)

- *Arsakuṭhāra rasa* kshara gutika
- *Jalodarārī rasa* kshara vartika
- *Udarārī rasa* vana kshara

### Pharmaco-therapeutics of *Snuhī* (*Euphorbia antiquorum*)

As per *Kavirāja Sadānanda Śarmā-*

सुधादुग्धं वातहरं गुल्मोदरविनाशनम्।  
विषाध्मानहरं चैव गुदाङ्कुरहरं परम्॥  
परं विरेचनकरं पुष्पकृत्वक्षिमध्यगम्।  
समाख्यातं विशेषेण क्षारकर्मकरं परम्॥

Rasatarāṅgiṇī 24.519-520

### *Lāṅgulī* (*Gloriosa superba*)



Fig. 9.10 : *Lāṅgulī* (*Gloriosa superba*)

Latin name *Gloria* → गुडुच्यादी - भा. प्र.

- *Gloriosa superba* औषधी - केक्यादी

English name हरितक्यादी - भा. विघ्न

- Malabar Glory Lily

Family

- Liliaceae

Āyurvedic description

Synonyms कळतादी

- |                      |                       |
|----------------------|-----------------------|
| • <i>lāṅgulī</i>     | • <i>dīptā</i>        |
| • <i>viśalāṅgali</i> | • <i>vidyujjvālā</i>  |
| • <i>agniśikhā</i>   | • <i>garbhapatīnī</i> |
| • <i>svaṃpauspā</i>  |                       |

Rasa (448)

- *kaṭu* (bitter) and *tikta* (pungent)

Guṇa

- *laghu* (light), *tikṣṇa* (sharp)

Vīrya

- *uṣṇa* (hot)



शुद्ध मूल - 250 to 500mg  
शुद्ध लिप्तासत - 3 to 6gm

अश्वत्थार - 1 to 2gm

Shodhana → Soaked in Gomutra for 1 day

**Vipāka**  
▪ kaṭu (bitter)

**Prabhāva**  
▪ garbhapatana (abortifacient)

Useful Part → kanda (Bulb)

**Category**  
▪ Organic irritant poison

**Active principles**  
▪ Superbine, colchicine etc. Glucosine

**Habitat**  
▪ Commonly found in all parts of Indian subcontinent.

**Morphology**

- Perennial herbs found climbing/ scrambling over other neighbouring plants.
- Leaves - Sessile, alternate, opposite or verticillate.
- Flowers - Showy, greenish-yellow to pinkish-red in colour.
- Seeds - Few, wing like.

**Signs and Symptoms**

- burning and numbness in the mouth and throat
- nausea
- vomiting
- purging
- profuse sweating etc.
- ataxia
- spasm
- convulsions

**Fatal dose** 750mg

- Uncertain

**Fatal period**

- Uncertain

**Treatment** लिंबु स्वरस, तक्र, चिंगागन्क, पक्का, मध, खडीसाखर

- Treatment of shock
- Maintenance of blood pressure
- Symptomatic treatment

**Post-mortem appearance**

- Non-specific

**Medico-legal aspects**

- Abortifacient
- Suicidal poisoning etc.

Oxytocin over dose

**Important formulations of Lāngulī (Gloriosa superba)**

- Kāsīsādi tailam
- Lāngalī rasāyanam

**Pharmaco-therapeutics of Lāngulī (Gloriosa superba)**

As per Kavirāja Sadānanda Śarmā-  
लांगली कटुका चोष्णा कफवातहरा सरा।  
अपरापातिनी चैव सद्यःप्रसवकारिका।।  
शोथापहा विशेषेण मता व्रणनिवारिणी।  
कुष्ठकृमिप्रशमनी विशेषात्परिकीर्तिता।।  
Rasatarangīnī 24.501-502

**Karavīra (oleander)**



Fig. 9.11 : Karavira (oleander)

**Latin name**

- Śveta karavīra - Nerium indicum
- Pita karavīra - Cerebra thevetia/ Thevetia nerrifolia

**English name**

- Indian oleander

**Family**

- Apocynaceae

**Āyurvedic description**

**Synonyms**

- hayāri
- hayamāra
- aśvamāra
- aśvāntaka
- aśvahā
- aśvaghna
- caṇḍātaka

**Rasa**

- kaṭu (bitter) and tikta (pungent)

**Guṇa**

- Rūkṣa (dry), laghu (light), tīkṣṇa (sharp)



**Vīrya**

- uṣṇa (hot)

**Vipāka**

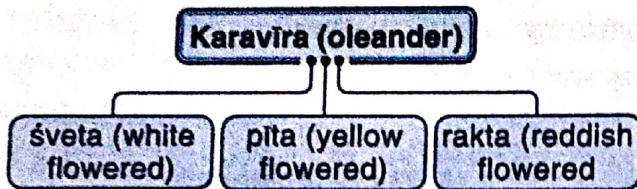
- kaṭu (bitter)

**Varga**

- mūla viṣa (root poison)

**Classification**

- Three kinds



**Category**

- Cardiac poison

**Active principles**

- neriodorin, neiodorein, karabin etc.

**Habitat**

- Commonly found in all parts of India.

**Morphology**

- Based on colour of flowers, it is of three types -
  - ♦ white      ♦ reddish      ♦ yellowish.
- It is an evergreen shrub or small tree.
- It grows upto 2 to 6 meters with erect stems.
- Leaves - Dark green in colour; shining above and rough & dotted beneath.
- Flowers - 1.5 inches in diameter, red or white coloured.
- Fruits - 6 to 7 inches and 3 to 4 inches
- Seeds - Linear, ribbed, having a coma of greyish-brown hairs.

**Signs and Symptoms**

As per Āyurveda-

करवीरविषे तापो कोष्ठे भवति दारुणः ।

स शूलौ वातिरेकौ च भवेदाक्षेपको गदः ॥

Anupānamañjarī

Poisoning due to *karavīra* (oleander) presents, in the victim's body, with:

- koṣṭha tāpa (warmth in abdomen)
- dāruṇa śūla (severe colic)
- vānti (vomiting)

- vireka (diarrhoea)
- ākṣepa (convulsions).

**As per Modern Toxicology**

- burning sensation in throat and abdomen
- oedematous tongue
- difficulty in swallowing and speech
- profuse frothy salivation
- vomiting
- abdominal pain
- dilatation of pupils

**Fatal dose**

- Root: 15 - 20 gm
- Leaves: 5 - 15 gm

**Fatal period**

- 24 to 36 hours

**Post-mortem appearance**

- Petechial appearance on the heart
- Congestion of viscera
- Being heat-resistant, it can be traced even in burnt bodies

**Medico-legal aspects**

- Cattle poisoning (crushed seeds as fed with corn/ bread)
- Suicidal
- Abortifacient
- Homicidal (rarely used)

**Treatment**

- Stomach wash (using Tannic acid)
- Symptomatic management
- Morphine for sedation
- Sodium lactate

**Important formulations of Karavīra (oleander)**

- Karavīrādi tailam

**Pharmaco-therapeutics of Karavīra (oleander)**

As per Kavirāja Sadānanda Śarmā-

करवीरकमूलं तु वारिणा परिपेषितम् ।

समाख्यातं प्रलेपेन ह्युपदंशव्रणापहम् ॥

करवीरदलद्रावो नेत्रयोर्विनियोजितः ।

अभिष्यन्दं जलस्रावं व्यपोहति विशेषतः ॥

Rasatarāṅgīnī 24.492-493



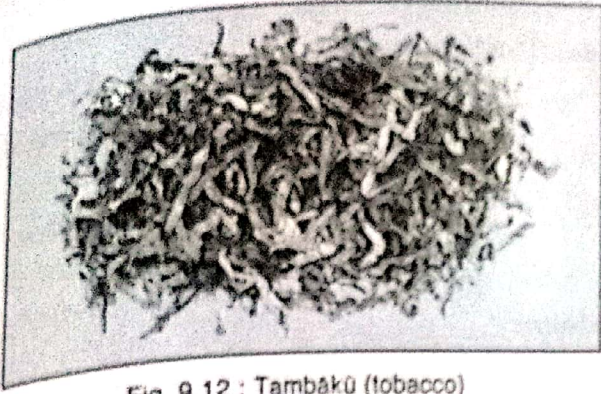
**Tambākū (tobacco)**

Fig. 9.12 : Tambākū (tobacco)

**Latin name**

- *Nicotina tabacum*

**English name**

- Tobacco

**Family**

- Solanaceae

**Āyurvedic description****Synonyms**

- *tāmrapatra*
- *gucchapatra*
- *kṣārapatra*
- *kṛmighna*
- *vajrapatrikā*

**Category**

- Cardiac poison

**Signs and Symptoms**

- nausea and vomiting
- excessive salivation
- abdominal pain
- pallor
- sweating
- hypertension
- tachycardia
- ataxia etc.

**Fatal dose**

- Adults - 0.5-1.0 mg/kg
- Children - 0.1 mg/kg

**Fatal period**

- 5 - 15 mins

**Treatment**

- Activated charcoal

- Control of seizures (using benzodiazepine)
- I.v. fluids (for hypotension)
- Atropine (for bradycardia)
- Respiratory support
- Acidification of urine

**Post-mortem appearance**

- Signs of asphyxia
- Brownish froth (mouth and nostrils)
- Congestion of GIT
- Pulmonary oedema

**Medico-legal aspects**

- Accidental poisoning
- Malingering

***Parthenium hysterophorus***Fig. 9.13 : *Parthenium hysterophorus***Latin name**

- *Parthenium hysterophorus*

**English name**

- Altamisa/Carrot grass/Bitter weed/Star weed/White top/Wild fever few/Scourage of India/Congress grass

**Family**

- Asteraceae

**Active principles**

- Parthenin, phenolic acids etc.

**Signs and Symptoms**

- allergy
- dermatitis
- respiratory malfunction
- eczema
- asthma
- allergic rhinitis



- Black spots
- burning and blisters around eyes
- diarrhoea etc.

**Fatal dose**

- Uncertain

**Fatal period**

- Uncertain

**Treatment**

- Treatment of allergy
- Symptomatic treatment

**Post-mortem appearance**

- Non-specific

**Medico-legal aspects**

- Accidental poisoning

**Citraka (Plumbago zeylanica)**



Fig. 9.14 : Citraka (Plumbago zeylanica)

**Latin name**

- Plumbago zeylanica

**English name**

- Ceylon Leadwort/ White Leadwort

**Family**

- Plumbaginaceae

**Āyurvedic description**

**Synonyms**

- analanāmā
- vyāla
- pāṭhī
- uṣaṇa

**Rasa**

- kaṭu (bitter)

**Guṇa**

- rūkṣa (dry), laghu (light), fiṣṇa (sharp)

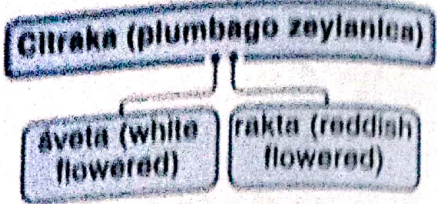
**Vīrya**

- uṣṇa (hot)

**Vipaka**

- kaṭu (bitter)

**Classification**



**Category**

- Organic irritant poison

**Active principles**

- plumbagin

**Signs and Symptoms**

On application	On ingestion
<ul style="list-style-type: none"> <li>• irritation</li> <li>• blisters</li> </ul>	<ul style="list-style-type: none"> <li>• burning pain in the GIT</li> <li>• vomiting</li> <li>• thirst</li> <li>• diarrhea</li> <li>• collapse etc.</li> </ul>

**Fatal dose**

- Uncertain

**Fatal period**

- Few days

**Post-mortem appearance**

- Signs of gastro-enteritis
- Congestion of internal organs

**Medico-legal aspects**

- Abortifacient
- Homicidal poisoning

**Treatment**

- Gastric lavage
- Demulcents
- Symptomatic treatment

**Important formulations of Citraka**

**(Plum-bago zeylanica)**

- Ārogyavardhinī vaṭī
- Candraprabhā vaṭī
- Citrakādi vaṭī



▪ Hemagarbha pottali rasa  
 ▪ Vātavidhvamsana rasa  
 Pharmaco-therapeutics of Citraka  
 (Plum-bago zeylanica)  
 As per Ācārya Bhāvamiśra

चित्रकः कटुकः पाके वह्निकृत्पाचनो लघुः ॥  
 रूक्षोष्णो ग्रहणीकुष्ठशोथार्थः कृमिकासनुत् ॥  
 वातश्लेष्महरो ग्राही वातघ्नः श्लेष्मपित्तहत् ॥

BP. Haritakyādivarga 70-71

**Eraṇḍa (Ricinus communis)** चित्तलाशक



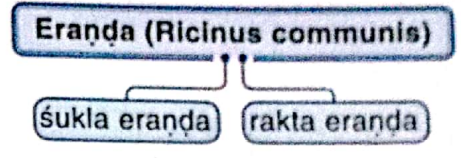
Fig. 9.15 : Eraṇḍa (Ricinus communis)

Latin name Gono → Svedopaga  
 ▪ Ricinus communis Bhedniya } Charaka  
 English name Dashaamani  
 ▪ Castor oil plant Adhobhagahar - Sushruta  
 Family Aushadhi - Kaikyodi  
 ▪ Euphorbiaceae Haritakyadi - MA. निचंदू  
 Āyurvedic description  
 Synonyms चित्र

- |                  |                 |
|------------------|-----------------|
| • gandharvahasta | • vyāghrapuccha |
| • pañcāṅgula     | • urubūka       |
| • vardhamāna     | • vyaḍambaka    |
| • uttānapatraka  |                 |

Rasa ११४  
 ▪ madhura (sweet)  
 Anurasa  
 ▪ kaṭu (bitter) and kaṣāya (astringent)  
 Guṇa  
 ▪ snigdha (unctuous), tīkṣṇa (sharp), sūkṣma (subtle)  
 Virya  
 ▪ uṣṇa (hot)

Vipāka Useful drug → Seeds  
 ▪ madhura (sweet) Shodhana → Svedana in Namkoto jalā 3 hrs  
 Prabhāva  
 Karma  
 Classification



Category ओं मा → 5 Ru  
 ▪ Organic irritant poisons पत्र कलक → 10 to 20 gm  
 Active principles  
 ▪ Ricin etc. पत्र कलक → 1 to 6 gm  
 बीज कलक → 2 to 6 gm

Signs and Symptoms  
 ▪ burning sensation in the G.I.T.  
 ▪ salivation  
 ▪ nausea  
 ▪ vomiting  
 ▪ bloody diarrhoea  
 ▪ abdominal pain  
 ▪ thirst  
 ▪ impairment of sight  
 ▪ weak and rapid pulse  
 ▪ cramps etc.

Fatal dose  
 ▪ 5 - 10 seeds Ricin - 6mg

Fatal period  
 ▪ 2 to several days

Post-mortem appearance  
 ▪ congestion of GIT mucosa  
 ▪ sub-mucous haemorrhages  
 ▪ dilation of heart  
 ▪ haemorrhages in the pleura  
 ▪ oedematous liver, kidneys and other organs

Medico-legal aspects  
 ▪ Accidental  
 ▪ Homicidal

Treatment  
 ▪ Gastric lavage  
 ▪ Demulcents  
 ▪ Symptomatic



### Important formulations of *Eraṇḍa* (*Ricinus communis*)

- *Eraṇḍamūlādi kaṣāya*
- *Eraṇḍapāka*
- *Gandharvāharītakī*

### Pharmaco-therapeutics of *Eraṇḍa* (*Ricinus communis*)

As per Ācārya Bhāvamiśra-

एरण्डयुग्मं मधुरमुष्णं गुरु विनाशयेत् ।

शूलशोथकटीबस्तिशिरःपीडोदरज्वरान् ॥

ब्रध्नश्वासकफानाहकासकुष्ठाममारुतान् ॥

BP. *Guḍūcyādivarga* 62-63

### *Hṛtpatrī* (*digitalis*)

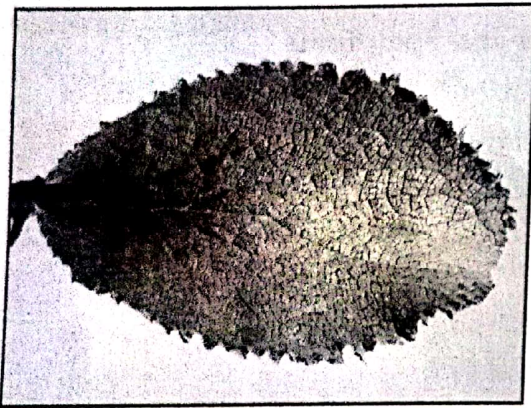


Fig. 9.16 : *Hṛtpatrī* (*digitalis*)

#### Latin name

- *Digitalis purpurea*

#### English name

- *Digitalis*/ Foxglove

#### Family

- Scrophulariaceae

#### Āyurvedic description

#### Synonyms

- *tilapuṣpī*

#### Rasa

- *tikta* (pungent)

#### Guṇa

- *laghu* (light) and *rūkṣa* (dry)

#### Vīrya

- *śīta* (cold)

#### Vipāka

- *kaṭu* (bitter)

#### Prabhāva

- *hṛdyā*

### Category

- Cardiac poison

### Active principles

- digitoxin, digitonin, digoxin

### Signs and Symptoms

- nausea
- vomiting
- diarrhoea
- xanthopsia (jaundiced/ yellow vision)
- drooling
- abnormal heart rate
- cardiac arrhythmias
- weakness
- dilated pupils
- tremors etc.

### Fatal dose

- Digitalin: 15 - 30 mg
- Digitoxin: 4 mg
- Leaf: 2 gm

### Fatal period

- 1 - 24 hrs

### Post-mortem appearance

- Non-specific

### Medico-legal aspects

- Accidental (due to drug overdosing)

### Treatment

- Stomach wash
- Bowel evacuation
- Activated charcoal
- Digoxin specific antibody fragments (Fab) i.v.
- Lignocaine iv.
- Dilantin/ Propranolol
- Potassium salts etc.

### *Cerbera odollam*

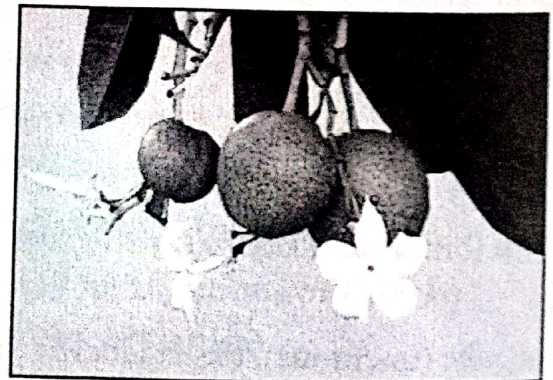


Fig. 9.17 : *Cerbera odollam*

#### Latin name

- *Cerbera odollam*



**English name**

- Suicide tree/ Pong-pong/ Othalanga

**Family**

- Apocynaceae

**Category**

- Cardiac poison

**Active principles**

- cerberin (a potent alkaloid toxin)

**Signs and Symptoms**

- nausea
- severe retching
- vomiting
- abdominal pain
- diarrhoea
- blurring of vision
- bradycardia
- irregular breathing etc.

**Fatal dose**

- Kernel of one fruit

**Fatal period**

- 1 - 2 days

**Post-mortem appearance**

- similar to asphyxia
- congestion of eyes
- congestion of lungs etc.
- haemorrhages etc.

**Medico-legal aspects**

- suicidal
- homicidal

**Treatment**

- Stomach wash
- Atropine
- Manage hyperkalaemia





## DŪṢĪVIṢA (POLLUTING POISON) AND GARAVIṢA (slow acting / polluting poison and swallowing poisons)

### LEARNING OBJECTIVES

- Dusivisa is polluting poison.
- Dusivisa is aggravated by sita, anila, and durdina.
- Tuttha bhasma, Gandhaka Rasayana and Kalyanaka ghrtam are used in dusivisa Management.
- Garavisa is an artificial poison.
- Ksira (milk) and Sarpi (ghee) are pathyam in condition caused by garavisa.

### Dūṣivīṣa (polluting poisons)

#### Introduction

The word 'dūṣī' is formed of *dūṣa dhātu* along with *ṇic* and *in pratyaya*. '*Dūṣa*' means non-pious or one that vitiates; '*dūṣī*' is waste discharging from eyes. In *Āyurveda*, the word *dūṣivīṣa* is used for :

- *viṣas* (poisons) that have aged {either *sthāvara* (immobile), *jaṅgama* (mobile) or *kr̥trima* (artificial)} or *reduced in effect*
- *viṣas* (poisons) attenuated by *viṣaghna-auṣadhi* (anti-poisonous remedies) or
- *viṣas* (poisons) *śoṣita* (dried) in *dāvāgni* (forest fire), *vāta* (wind) and the *ātapa* (sun) or
- *viṣas* (poisons) naturally deficient in *guṇa* (properties).

Closest modern terminology for *dūṣivīṣa* is polluting poison.

#### Etymological derivation of dūṣivīṣa

(I) As per *Ācārya Suśruta* :

[दूषितं देशकालान्दिवास्वप्नैरभीक्षणशः ।  
यस्माद्दूषयते धातून् तस्माद्दूषीविषं स्मृतम् ॥] SS.K. 2.33

*Dūṣivīṣa* (polluting poison) is so called as it vitiates *dhātus* frequently on being excited itself by *deśa* (place), *kāla* (time), *anna* (food) and *divāsvapna* (day-sleep).

As per *Ācārya Dalhana* :

अन्नस्योपलक्षणत्वाद् व्यवाय व्यायामक्रोधादिभिर-  
पीत्यर्थः ।

(II) As per *Ācārya Cakrapāṇi* :

कालान्तरप्रकोपि विषं दूषीविषम् । Ck. on CS.Ci. 23.31

*Dūṣivīṣa* (polluting poison) is a kind of *viṣa* (poison) that manifests its poisoning effects after a lapse of time.

(III) As per *Ācārya Vṛddha Vāgbhaṭa* :

प्राग्वाताजीर्णशीताभ्रदिवास्वप्नाहिताशनैः ।

दुष्टं दूषयते धातून्तो दूषीविषं स्मृतम् ॥ AS.Ut. 40.44

Because it gets aggravated by *prāgvāta* (eastern breeze), *ajirṇa* (indigestion), *śītābhra* (cold climate), *divāsvapna* (day-sleeping) and indulgence in *ahitāśana* (inapt foods) and then vitiates the *dhātus* (bodily tissues) it is known as *dūṣivīṣa* (polluting poison).

#### Definiton of dūṣī-viṣa

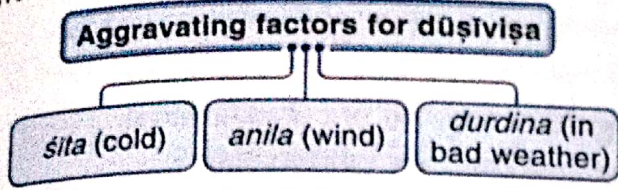
As per *Ācārya Suśruta* :

यत् स्थावरं जंगमकृत्रिमं वा देहादशेषं यदनिर्गतं तत् ।  
जीर्णं विषघ्नौषधिभिर्हतं वा दावाग्निवातातपशोषितं  
वा ॥ स्वभावतो वा गुणविप्रहीनं विषं हि दूषी-  
विषतामुपैति । वीर्याल्पभावान् निपातयेत्तत् कफावृतं  
वर्षगणनुबन्धि ॥ SS.K. 2.25-26

*Sthāvara* (immobile), *jaṅgama* (mobile) or *kr̥trima* (artificial) poison which is *jirṇa* {old (stored for long)} or attenuated by *viṣaghna-auṣadhi* (anti-poisonous remedies) or *śoṣita* (dried) in *dāvāgni* (forest fire), *vāta* (wind) and the *ātapa* (sun) or naturally deficient in *guṇa* (properties) attains



the nature of 'dūṣi-ṣiṣa'. It is not fatal due to *alpa-vīryatā* (mild potency) and being covered with *kapha*; it stays in body for years to come.



Aggravating factors for dūṣiṣa

As per Ācārya Suśruta :

कोपं च शीतानिलदुर्दिनेषु यात्याशु । SS.K. 2.29

It aggravates quickly by śita (cold), anila (wind) and durdina (in bad weather).

**Etiology of dūṣiṣa**

Inappropriate *deśa* (habitat), *kāla* (schedule), *āhāra* (diet), *vihāra* (lifestyle), profuse *pariśrama* (physical labour), excess of *maithuna* (sexual indulgence), *mānasika dvandva* (mental conflicts), *krodha* (anger) etc. *pratikūla samvegas* (discomforting subjects) lessen the immunity and vigour of the person; in such persons easterly winds, scorching sun, cold breeze, rain, clouds, indigestion, *āmaviṣa* etc. facilitate dūṣiṣa to vitiate the *dhātus* (bodily tissues); thus manifests signs and symptoms.

**Pūrvārūpa (pre-monitory symptoms) of dūṣiṣa**

As per Ācārya Suśruta :

निद्रा गुरुत्वं च विजृम्भणं च विश्लेषहर्षावथवाङ्गमर्दः । SS.K. 2.30

Its *pūrvārūpa* (premonitory symptoms) are as follows :

- *nidrā* (excessive sleep)
- *gurutvam* (heaviness)
- *vijrmbhaṇam* (excessive yawning)
- *viśleṣa* (looseness)
- *harṣa* (horripilation)
- *aṅgamarda* (malaise).

**Signs and symptoms of dūṣiṣa**

(I) As per Ācārya Caraka :

दूषीविषं तु शोणितदुष्ट्यारुः किटिमकोठलिंगं च ।  
विषमेकैकं दोषं संदूष्य हरत्यसूनेवम् ॥ CS.Ci. 23.31

Dūṣiṣa vitiates *śoṇita* (blood) and produces symptoms like

- *aru* (eczema in the head region)
- *kiṭima* (psoriasis)
- *koṭha* (urticaria).

This type of *viṣa* (poison) bothers each one of the *doṣas* and causes cessation of patient's life.

(II) As per Ācārya Suśruta :

तेनार्दितो भिन्नपुरीषवर्णो विगन्धवैरस्यमुखः पिपासी ।  
मूर्च्छन् वमन् गद्गदवाग्विषण्णो भवेच्च दुष्योदर-  
लिंगजुष्टः ॥ SS.K. 2.27

Signs and symptoms of dūṣiṣa are:

- *bhinna purīṣa* (diarrhoea/ loose stool)
- *bhinna varṇa* (pathological/ changed complexion)
- *mukha vaigandhya* (halitosis)
- *mukha vairasya* (loss of taste in mouth)
- *pipāsā* (profuse thirst)
- *mūrccchā* (fainting)
- *vamana* (vomiting)
- *gadgada vāṇī* (muffled voice)
- *viṣaṅṅa* (features of toxicity/ depression)
- *dūṣyodara* (abdominal disorder due to vitiation of all three *doṣas*).

As per Ācārya Suśruta :

ततः करोत्यन्नमदाविपाकावरोचकं मण्डलकोठमोहान् ॥  
धातुक्षयं पादकरास्यशोफं दकोदरं छर्दिमथातिसारम् ।  
वैवर्ण्यमूर्च्छाविषमज्वरान् वा कुर्यात् प्रवृद्धां प्रबलां तृषां  
वा ॥ उन्मादमन्यज्जनयेत्तथाऽन्यदानाहमन्यत् क्षपयेच्च  
शुक्रम् । गाद्गद्यमन्यज्जनयेच्च कुष्ठं तांस्तान् विकारांश्च  
बहुप्रकारान् ॥ SS.K. 2.30-32

Consumption of dūṣiṣa produces following signs and symptoms :

- *annamada* (intoxication after meals)
- *avipāka* (indigestion)
- *arocaka* (anorexia)
- *maṅḍala* (dermal patches)
- *koṭha* (allergic rashes)
- *moha* (stupor)
- *dhātukṣaya* (depletion of bodily tissues)
- *pāda-śoṣa* (pedal oedema)
- *kara-śoṣa* (oedema in hands)



- āsya-śopha (facial oedema)
- dakodara (ascites)
- chardi (vomiting)
- atisāra (diarrhoea)
- vaivarṇya (discolouration)
- mūrccchā (fainting)
- viṣamajvara (intermittent fever)
- pravṛddha (excessive) and prabalatrṣṇā (severe thirst)
- unmāda (psychosis)
- ānāha (tympanites)
- śukrakṣaya (depletion of semen)
- gād-gadya (muffled voice)
- kuṣṭha (skin ailments) and respective disorders of various kinds.

### Symptoms of dūṣiṣa embedded in various organs

As per Ācārya Suśruta :

आमाशयस्थे कफवातरोगी पक्वाशयस्थेऽनिलपित्तरोगी ।  
भवेन्नरो ध्वस्तशिरोरुहांगो विलूनपक्षस्तु यथा विहंगः ॥  
स्थितं रसादिष्वथवा यथोक्तान् करोति धातुप्रभवान्  
विकारान् । SS.K. 2.28-29

- If dūṣiṣa is located in āmāśaya (stomach), the person suffers from disorders of kapha and vāta.
- If dūṣiṣa is located in pakvāśaya (intestines), he becomes a victim of the disorders caused by vāta and pitta. In these cases, śirorūha (hairs) fall off and the person resembles a vihāṅgaḥ (bird) with vilūna paksa (severed wings).
- Situated in rasa etc. it produces respective disorders of dhātus as mentioned.

### Prognosis of dūṣiṣa

As per Ācārya Suśruta :

साध्यमात्मवतः सद्यो याप्यं संवत्सरोत्थितम् ।

दूषीविषमसाध्यं तु क्षीणस्याहितसेविनः ॥ SS.K. 2.55

The case of poisoning of instantaneous origin and in the ātmaavataḥ (patient of strong will) is sādhyā (curable), the same of one year's duration is yāpya (palliable) and dūṣiṣa is asādhyā (incurable) particularly in the patient who is ksīṇa (emaciated) and indulges in ahita-sevana (consumption of inapt articles).

### Treatment of dūṣiṣa

As per Ācārya Suśruta :

दूषीविषातं सुस्विन्नमूर्ध्वं चाधश्च शोधितम् ।  
पाययेतागदं नित्यमिमं दूषीविषापहम् ॥  
पिप्पल्यो ध्यामकं मांसी शावरः परिपेलवम् ।  
सुवर्चिका ससूक्ष्मैला तोयं कनकगैरिकम् ॥  
क्षौद्रयुक्तोऽगदो ह्येष दूषीविषमपोहति ।  
नाम्ना दूषीविषारिस्तु न चान्यत्रापि वार्यते ॥

SS.K. 2.50-52

After the patient of dūṣiṣa (latent poison) is subjected svedana (sudation), ūrdhva-śodhana (emesis) and adho-śodhana (purgation) one should give him to drink this dūṣiṣiṣāpaham (anti-poisonous) recipe regularly -

- Pippali, dhyāmaka (katrṇa), māmsī, śābara (rodhra), paripelava, suvarcikā, sūkṣma eḷā, bālaka and svarṅgairika - mixed with honey.
- It is known as 'dūṣiṣiṣāri' (enemy of dūṣiṣa) which is not restricted (to dūṣiṣa and is used in other types of poison and diseases as well).

### Treatment of complications of dūṣiṣa

As per Ācārya Suśruta :

ज्वरे दाहे च हिक्कायामानाहे शुक्रसंक्षये ।  
शोफेऽतिसारे मूर्च्छायां हृद्रोगे जठरेऽपि च ॥  
उन्मादे वेपथौ चैव ये चान्ये स्युरुपद्रवाः ।  
यथास्वं तेषु कुर्वीत विषघ्नैरौषधैः क्रियाम् ॥

SS.K. 2.53-54

Complications of dūṣiṣa are :

- jvara (fever)
- dāha (burning sensation)
- hikkā (hiccough)
- ānāha (tympanites)
- śukra-sankṣaya (loss of semen)
- śopha (oedema)
- atisāra (diarrhoea)
- mūrccchā (fainting)
- hṛdroga (cardiac ailment)
- jāthararoga (abdominal pathologies)
- unmāda (psychosis)
- vepathu (tremors) and other upadravas (complications).



Treatment should be given with respective anti-poisonous drugs.

**Cikitsā (treatment)**

• **Viśiṣṭa yoga (special formulation):** *Tuttha bhasma*, *Gandhaka rasāyana* and *Kalyāṇaka ghr̥tam* are useful in the management of *dūṣiṣa*.

• **Virecana (purgation)**

• For this *tuttha bhasma* (375 to 750 mg) should be given to the patient wrapped in a wheat dough and this should be followed by consumption of 50 to 100 gm of *go-ghṛta* (cow's ghee). Patient begins to purge after two hours. He should again be served another 50 gm of *go-ghṛta*. After second bout of purgation, he should be made to drink another 50 gm of *go-ghṛta*. This protocol should be continued till evacuation of only *go-ghṛta* through ano-rectal route. This is achieved in 10 to 12 rounds of above mentioned procedure. This pacifies the *viṣa* and anxiety is relieved. Hunger of the patient should be abated by serving *mudga* (green gram) preparation for next two days.

• **Use of rasāyana (Rejuvenation therapy):**

• After completion of *ūrdhva-śodhana* (emesis) and *adho-śodhana* (purgation), the patient should consume *gandhaka-rasāyana* (1 gm in dose) with equal amount of *miśrī* (sugar candy) twice daily (morning and evening). This should be followed by drinking milk.

• *Kalyāṇaka ghr̥ta* (10 to 20 gm) twice daily should be given for drinking. This prescription subsides all the disorders caused by *dūṣiṣa* and body attains *nirmalatva* (cleanliness) and *manah* becomes peaceful.

Following drugs are found to be useful in case of *jirna visaprakopa* (chronic aggravation of poisons)

- *suvarna bhasma*
- *suvarnamākṣika bhasma*

- *tārṁṣya bhasma*
- *puṣparāga bhasma*
- *pravāla piṣṭi*
- *pravāla pañcāmṛta*
- *rasādi cūrṇa*
- *tāpyādi lauha* etc.

**Garaviṣa (swallowing poisons / artificial poisons)**

**Definition of garaviṣa**

(I) As per Ācārya Vāgbhaṭa :

नानाप्राण्यंगशमलविरुद्धौषधिभस्मनाम् ॥

विषाणां चाल्पवीर्याणां योगो गर इति स्मृतः ।

AH.Ut. 35.49-50

Combination of *mala* (excreta) from various *aṅga* (bodyparts) of *prāṇis* (living beings), *viruddha-auśadhi* (incompatible drugs), *bhasma* (calcined powders) and *alpavīrya viṣas* (poisonous substances of mild potency) is known as *garaviṣa* (slow acting/ polluting poison and swallowing poisons).

(II) As per Ācārya Caraka :

गरसंयोगजं चान्यद्गरसंज्ञं गदप्रदम् ।

कालान्तरविपाकित्वान्न तदाशु हरत्यसून् ॥ CS.Ci. 23.14

A variety of poison called *garaviṣa* is prepared artificially by mixing various substances; it produces *gada* (diseases). As it takes some *kāla* (time) for this type of poison to reach *vipāka* (metabolized) and produce its toxic effects, it does not cause prompt demise of a person.

(III) Ācārya Cakrapāṇi says :

'गर' इति तन्त्रे संज्ञा यस्य तद् गरसंज्ञम् ।

तच्च चिरकारिरोगजनकमप्राणहरम् ।

Ck. on CS.Ci. 23.14

'Gara', a technical term, is specially used in the texts for this type of artificial poisoning. By nature, this kind of *viṣa* (poison) produces its effects after a long time to cause *roga* (disease) and death.

**Purpose of inducing garaviṣa**

As per Ācārya Caraka :

सौभाग्यार्थं स्त्रियः स्वेदरजोनागजाम्लान् ।

शत्रुप्रयुक्तांश्च गरान् प्रयच्छन्त्यन्मिश्रितान् ।

CS.Ci. 23.233



Strī (women), in order to gain *saubhāgya* (favour from their husbands), at times, administer their *sveda* (sweat), *raja* (menstrual blood) and different types of *mala* (waste products) of their *aṅga* (body) along with *anna* (food). Even infiltrators playing in the hands of *śatru* (foes),<sup>enemy</sup> sometimes, administer various types of *garaviṣa* along with food preparations.

This attitude of culprit (women/enemy) is the result of their *ajñāna* (lack of knowledge), blind beliefs and mistaken *tāntrika* concepts; some of these are still prevalent in corners of the world. The major drive behind this attitude is misleading by enemies and ill-minded individuals. In times of folklore, *viṣakanyās* were misused by their compatriots for ill-deeds.

### Signs and symptoms of *garaviṣa*

As per *Ācārya Caraka* :

तैः स्यात् पाण्डुः कृशोऽल्पाग्निर्गर्गश्चास्योपजायते ।  
मर्मप्रधमनाधमानं श्वयथुं हस्तपादयोः ॥  
जठरं ग्रहणीदोषो यक्ष्मा गुल्मः क्षयो ज्वरः ।  
एवंविधस्य चान्यस्य व्याधेर्लिंगानि दर्शयेत् ॥  
स्वप्ने मार्जारगोमायुव्यालान् सनकुलान् कपीन् ।  
प्रायः पश्यति नद्यादीञ्छुष्कांश्च सवनस्पतीन् ॥  
कालश्च गौरमात्मानं स्वप्ने गौरश्च कालकम् ।  
विकर्णनासिकं वाऽपि प्रपश्येद्विहतेन्द्रियः ॥

CS.Ci. 23.234-237

Symptoms exhibited by patients of *garaviṣa* are :

- *pāṇḍutā* (pallor)
- *kārśya* (emaciation)
- *alpāgni* (suppression of power of digestion)
- *marma-pradhamana* (tachycardia)
- *ādhmāna* (flatulence)
- *hasta-śvayathu* (oedema in the hands)
- *pāda-śvayathu* (pedal oedema)
- *jaṭhararoga* (abdominal pathologies)
- *grahaṇīdoṣa* (Sprue syndrome)
- *yakṣmā* (tuberculosis)
- *gulma* (phantom tumour)
- *kṣaya* (consumption)
- *jvara* (fever) and signs and symptoms of such other diseases.

### Dreams

- Such a patient, usually dreams of *mārjāra* (cats), *gomāyu* (jackals), *vyāla* (wild

animals), *nakula* (mongooses) and *kapīn* (monkeys) and *śuṣka nadī* (dried river) etc. and *śuṣka vanaspati* (withered trees).

- If he is of dark complexion, he dreams himself to be of white complexion; and vice-versa.
- He dreams himself to be without *karṇa* (ears) and *nāsikā* (nose), and not to be with *vihata-indriya* (distorted sensory organs).

### Prognosis of *garaviṣa*

As per *Ācārya Vāgbhaṭa*:

एतैरन्यैश्च बहुभिः क्लिष्टो घोरैरुपद्रवैः ॥

गरातो नाशमाप्नोति कश्चित्सद्योऽचिकित्सितः ।

AH.Ut. 35.54-55

Suffering from these and many other *klīṣṭa* (difficult) and *ghora* (dreadful) *updravas* (secondary afflictions), the *garārta* (patient of *garaviṣa*) dies very soon in absence of appropriate treatment.

### Treatment of *garaviṣa*

(I) As per *Ācārya Caraka*

तमवेक्ष्य भिषक् प्राज्ञः पृच्छेत् किं कैः कदा सह ।

जग्धमित्यवगम्याशु प्रदद्याद्दमनं भिषक् ॥ CS.Ci. 23.238

When an intelligent *bhiṣak* (physician) coming across a patient of *garaviṣa*, investigation should be made about what sorts of food he had consumed, in whose company and when.

- *Vamana-karma* (emesis)

सूक्ष्मं ताम्ररजस्तस्मै सक्षौद्रं हृद्विशोधनम् ।

CS.Ci. 23.239-240

The patient should promptly be given *vamana* (emetic therapy) by the physician. He should be given *tāmrraraja* (fine powder of copper) along with *kṣaudra* (honey) for *hrdviśodhana* (cleansing the heart).

- *Hemacūrṇa*

शुद्धे हृदि ततः शाणं हेमचूर्णस्य दापयेत् ॥

हेम सर्वविषाण्याशु गरांश्च विनियच्छति ।

न सज्जते हेमपांगे विषं पद्मदलेऽम्बुवत् ॥

CS.Ci. 23.239-240

After *hrdviśodhana* (cleansing the heart), the patient should be given one *śāṇa* (4 gm) of



*hemacūrṇa* {*bhasma* (lit. powder) of gold}. This *hema cūrṇa* immediately counteracts all the poisons including *garas* (artificial poisons). The poison does not afflict patient's *hr̥daya* (heart) if he has taken *hemacūrṇa* (gold *bhasma*), as water does not stick to a *padma-dala* (lotus leaf).

Notes: *Ācārya Caraka*, for patients afflicted with poisoning, considers *tāmrraraja* (fine powder of copper) best for *vamana-karma* (emetic therapy) and *hemacūrṇa* (gold *bhasma*) for counteracting all the poisons. Considering present day scenario, the dosage prescribed by *Ācārya Caraka* seems to be slightly on a higher side; secondly, *suvarṇa bhasma* is better suited than *hema-cūrṇa*.

■ **Agada-pāna:**

नागदन्तीत्रिवृहन्तीद्रवन्तीस्नुक्पयःफलैः ।

साधितं माहिषं सर्पिः सगोमूत्राढकं हितम् ॥

सर्पकीटविषार्तानां गरार्तानां च शान्तये ।

CS.Ci. 23.241-242

*Māhiṣa sarpiḥ* (buffalo-ghee) cooked with *nagadanti*, *trivṛt*, *danti*, *dravanti*, milky latex of *snuhi*, and *madanaphala*, along with one *āḍhaka* of *gomūtra* (cow's urine) is useful in curing patients suffering from the poisons of *sarpa* (snakes) and *kīta* (insects), and from *gara* (artificial poisons).

(II) As per *Ācārya Vṛddha Vāgbhaṭa*

*Ācārya Vṛddha Vāgbhaṭa* has given elaborate description for treatment of *garaviṣa*.

■ **Vamana karma** (emesis) and *hemaprā-śana* (licking of gold)

गरार्तो वान्तवान्भुक्त्वा तत्पथ्यं पानभोजनम् ।

शुद्धहृच्छीलयेद्धेम सूत्रस्थानविधेः स्मरन् ॥

AS.Ut. 40.64

The *garārta* (patient of slow acting/ polluting poison and swallowing poisons) should be subjected to *vamana* (emesis), adhere to *pathya* (apt) *pāna* (drinks) and *bhojana* (meals); after *hr̥d śuddhi* (cleansing of heart), the patient should partake *hema cūrṇa* (gold powder) as described in *Sūtrasthāna* (chapter 8) of the classic.

■ **Śāmaka yoga** (formulations)

शर्कराक्षौद्रसंयुक्तशूर्णस्ताप्यसुवर्णयोः ।

लेहः प्रशमयत्युग्रं सर्वं योगकृतं विषम् ॥

AS.Ut. 40.65

*Leha* (confection) made using *śarkarā* (sugar), *ksaudra* (honey) and powder of *suvarṇa-tāpya* (*suvarṇa-mākṣika*) should be licked for *praśamana* (pacification) of *atyugra viṣa* (virulent poisons) of all *yogas* (combinations).

**Management of complications arising due to gara-viṣa**

As per *Ācārya Vṛddha Vāgbhaṭa* -

■ **Treatment of garopahata pāvaka** (frailness of digestion caused by *gara*):

मूर्वामृतानतकणापटोलीचव्यचित्रकान् ।

वचामुस्तविडंगानि तक्रकोष्णाम्बुमस्तुभिः ।

पिबेदसेन चाप्लेन गरोपहतपावकः ॥ AS.Ut. 40.66

*Mūrvādi cūrṇa*: In the event of *garopahata pāvaka* (frailness of digestion caused by *gara*) *mūrvā*, *amṛtā*, *nata*, *kaṇā*, *paṭolī*, *cavya*, *citraka*, *vacā*, *musta* and *vidāṅga*; all these should be taken in equal quantity and consumed with *anupāna* (after drink) of *takra* (buttermilk), *koṣṇāmbu* (warm water), *mastu* (whey), *māmsarasa* (meat soup) or *kāñjika*.

■ **In tṛṣṇā** (thirst), *rujā* (pain), *kāsa* (cough), *śvāsa* (dyspnoea), *hidhmā* (hiccough) and *jvara* (fever) caused by *garaviṣa*:

पारावतामिषशटीपुष्कराह्मशृतं हिमम् ।

गरतृष्णारुजाकासश्वासहिध्माज्वरापहम् ॥

AS.Ut. 40.67

■ **Treatment of tvak vikāra** (skin ailments) caused by *garaviṣa*:

वायसी श्वासकासघ्नी भृष्टाज्यत्रिफलारसे ।

भाङ्गीनागरनिर्यूहः शिशिरश्च समाक्षिकः ॥

AS.Ut. 40.68

हरेणुचन्दनश्यामानलदं श्लक्ष्णपेषितम् ।

विलेपनं प्रयोक्तव्यं गरेणोपहतत्वचः ॥ AS.Ut. 40.69

Application of fine paste of *hareṇu*, *candana*, *śyāmā* and *nalada* helps in treatment of *tvak vikāra* (skin ailments) caused by *garaviṣa*.

■ **In ojaḥkṣaya** (depletion of immunity)

मज्जिष्ठा किणिही निम्बरजन्यश्चत्थचन्दनैः ।

प्रघर्षणं कृशानां तु गरेण क्षपितौजसाम् ॥

AS.Ut. 40.70

*Pragharṣaṇa* (powder massage) using *mañjiṣṭhā*, *kiñihī* (*Achyranthes aspera*), *nimba* (*Azadirachta indica*), *rajanī* (*Curcuma longa*), *aśvattha* and



*candana* (*Santalum album*) should be used in *ojaḥkṣaya* (depletion of immunity) caused by *garaviṣa*.

■ Formulation

As per *Ācārya Vṛddha Vāgbhaṭa* :

वृषनिम्बपटोलीनां क्वाथेन विपचेत् घृतम् ।  
अभयागर्भिणं श्रेष्ठं तत् गरस्य निबर्हणम् ॥

AS.Ut. 40.72

For *kvātha* (decoction) :

- ◆ *Vṛṣa* (*Adhatoda vasica*)
- ◆ *Nimba* (*Azadirachta indica*)

◆ *Paṭola* (*Trichosanthes dioica*)  
For *kalka* (paste) :

- ◆ *Abhayā* (*Terminalia chebula*)

Dosage : 24 to 48 ml

*Anupāna*: *Koṣṇa jala* (warm water)

■ Diet apt in *gara-viṣa*

As per *Ācārya Vṛddha Vāgbhaṭa* :

पथ्यं परममुद्दिष्टं शीलनं क्षीरसर्पिषोः । AS.Ut. 40.71

*Kṣīra* (milk) and *sarpi* (ghee) are apt in conditions caused by *garaviṣa*.





## KHANIJA OR DHĀTU VIṢA (Mineral & Metallic Poisoning)

### LEARNING OBJECTIVES

- Mercury is a metal in liquid stage.
- Mercury is known as quicksilver
- Dosas found in parada - 8
- Mercury poisoning
  - Acute
  - Chronic
  - Occupational
  - Therapeutic
- Vanga is of two types
  - Khuraka
  - Misraka
- Dhātuvisas are - 2 phenasma and Harital
- Copper is a brilliant metal
- Types of Tamra - 2
  - naipala (found in Nepal)
  - mlecha (found in other places)
  - dosas of Asuddha tamra - 8

### Khanija or Dhātu viṣa (Mineral or metallic poisons)

#### Definition

Minerals and metals, excavated from the interior of earth and having properties of poison when used irrationally, are termed as *Khanija* or *Dhātu viṣa* (mineral or metallic poisons).

#### Examples :

• <i>Pārada</i> (mercury)	• <i>Tāmra</i> (copper)	• Manganese
• <i>Nāga</i> (lead)	• <i>Yaśada</i> (zinc)	• Potassium permanganate
• <i>Vaṅga</i> (tin)	• Antimony	• Berium
• <i>Giripāṣāṇa</i> (arsenic)	• Thallium	• Radioactive substances

Among the listed, initial six are used by *Āyurvedic* fraternity since ancient times. These

will be elaborated in this chapter. Remaining six are gift of modern science to the world and these can be referred in modern books of related interest.

### 1. Pārada (Mercury)

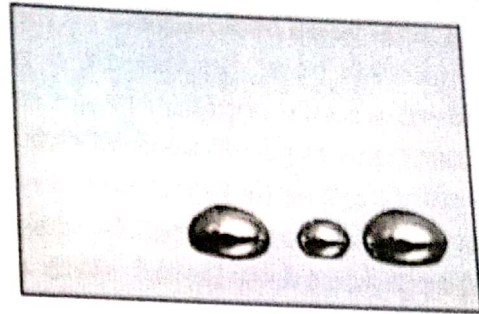


Fig. 11.1 : Pārada (Mercury)

English: Mercury / Quick silver

Latin: Hydrargyrum

Symbol: Hg

Atomic Number: 80

Atomic weight: 200.6

Specific gravity: 13.56

Freezing temperature: - 36°C

Melting temperature: - 35.87°C

Boiling point: 357.25°C

#### Synonyms

रसो रसेन्द्रः सूतश्च रसेशश्च रसेश्वरः ।

चपलो रसराजश्च पारदश्च शिवाह्वयः ॥

रसनादभ्रकादीनां धातूनां कीर्तितो रसः ।

अभ्रकाद्यधिराजत्वादसेन्द्र इति कथ्यते ॥

देहलोहमयीं सिद्धिं सूतेऽतः सूत उच्यते ।

स्वभावाच्चपलो यस्मात् ततोऽसौ चपलः स्मृतः ॥

आतङ्कपङ्कमग्नानां पारदानाच्च पारदः ।

अभ्रादिरसराजत्वादसराजः स्मृतो बुधैः ॥

Rasatarāṅgiṇī 5.1-4



• Rasa	• Capala	• Mukunda	• Mahā-rasa
• Rasendra	• Rasarāja	• Śivabija	• Śaṣihe-manidhi
• Sūta	• Khecara	• Rudra-teja	• Sūta-rāja
• Rasesvara	• Divya-rasa	• Jatra	

### Category

- Metallic poison

### Introduction

- Mercury is a metal in liquid stage; it resembles silver and is similarly whitish and shining in appearance; therefore it is also known as 'quicksilver'.
- Indians were introduced to this metal more than 3000 years back; almost all the classics of *Āyurveda* have described this metal.
- Modern science considers mercury as an element and is positioned at 80th place in Chemist's periodic table.
- In contrast to other metals, mercury is uniquely found in liquid state at room temperature.
- Kavirāja Sadananda Sharma, author of *Rasatarāṅgiṇī* (20th century), opines that *nāga*, *vaṅga*, *vahni*, *mala*, *cāpalya*, *viṣa*, *giri* and *asahyāgni* are the naturally occurring *doṣas* found in *Pārada* (Mercury). He quotes :

नागवद्गौ वह्निमलौ चापल्यं गरलं गिरिः ।  
असहाग्निश्च विज्ञेया दोषा नैसर्गिका रसे ॥

*Rasatarāṅgiṇī* 5.7

- Among these
  - ♦ *nāga-doṣa* causes *vraṇa* (ulcerations) in the body;
  - ♦ *vaṅga-doṣa* is responsible for *kuṣṭha* (skin ailments);
  - ♦ *agni-doṣa* causes rise in *tāpa* (body temperature);
  - ♦ *jaḍatā* (stiffness/ rigidity) is due to *mala-doṣa*;
  - ♦ *cāpalya-doṣa* causes *śukrakṣaya* (depletion of seminal secretions);
  - ♦ *viṣa-doṣa* will cause death of the individual;
  - ♦ *giri-doṣa* results in *sphoṭa* (blisters); and

- ♦ *asahyāgni-doṣa* is responsible for *moha* (stupor/ delirium). As said :  
नागाद् व्रणं भवेत्कुष्ठं वङ्गात्तापोऽग्निदोषतः ।  
मलाज्जाड्यं तु चापल्याद् बीजनाशो विषान्मृतिः ॥  
गिरेः स्फोटोऽथ मोहश्च ह्यसहाग्नेः प्रजायते ।  
एतैर्दोषैर्विहीनञ्च रसेन्द्रमिह योजयेत् ॥

*Rasatarāṅgiṇī* 5.8-9

- Ores of mercury are :

Table No 11.1

S.No.	Ore	Formula
1.	Cinnabar	HgS
2.	Meta cinnabar	HgS
3.	Calomel	Hg <sub>2</sub> Cl <sub>2</sub>
4.	Living stonite	2Sb <sub>2</sub> H <sub>2</sub> HgS
5.	Montroydite	HgO
6.	Falh ore	
7.	Barsenite	
8.	Gwadal kajrite	
9.	Steel ore of mercury	
10.	Liver ore of mercury	
11.	Carolline ore of mercury	
12.	Brick ore of mercury	

- Among these, Cinnabar (*hiṅgula*) is the prime source of mercury; this contains about 75 to 80% of mercury.

### Mercury poisoning

#### Source of poisoning

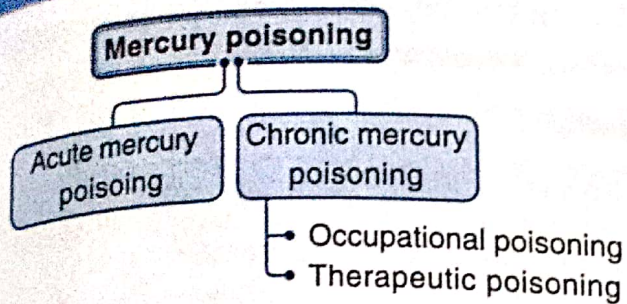
- Mercury is frequently used in arts, commercial and industrial setups, dentistry and other medical modalities.

**Types of mercury poisoning :** Mercury poisoning occurs in two ways :

- Acute
- Chronic

Acute poisoning is caused due to sudden ingestion of mercury in its toxic dosage whereas chronic poisoning is due to ingestion in minute quantity over a long span of time. Signs of acute poisoning are sudden and intense where as those of chronic poisoning are mild and consistent over a long period.





Chronic poisoning, again, is of two types :

- ◆ Occupational poisoning (those working in mines or working in industries involving usage or contact of mercury) and
- ◆ Therapeutic poisoning (those taking mercurial preparations for treatment of certain medical conditions).

**Signs and symptoms of mercury poisoning**

- **First phase:**
  - ◆ Acrid metallic taste in mouth
  - ◆ Sense of choking in the throat
  - ◆ Difficulty in breathing
  - ◆ Swelling & greyish-white coating of mouth etc.
  - ◆ Burning sensation in GIT etc.
- **Second phase:**
  - ◆ Glossitis
  - ◆ Ulcerative gingivitis
  - ◆ Loosening of teeth
  - ◆ Necrosis of jaw
  - ◆ Necrosis of renal tubules
  - ◆ Transient polyuria etc.

**Chronic Mercury poisoning (Hydrargyris)**

- **Causes**
  - ◆ Occupational
  - ◆ Recovery from acute poisoning
  - ◆ Accidental absorption by workers
  - ◆ Injudicious therapeutic usage (in terms of dosage/ duration)
- **Signs and symptoms**
  - ◆ Continuous metallic taste in mouth
  - ◆ Signs of gingivitis, glossitis etc.
  - ◆ Nausea, vomiting, diarrhoea with colicky pain
  - ◆ Anorexia
  - ◆ Anaemia

- ◆ Weight loss
- ◆ Lymphocytosis
- ◆ Mercuria lentis (due to deposition of mercury through the cornea on the anterior lens capsule)
- ◆ Skin : erythematous, eczematous or papular eruptions
- ◆ Mercurial tremors
- ◆ Erethism etc. - *Neurological Disorder*

■ **Treatment :**

- ◆ Removal from site of exposure (e.g. change of profession, location, site etc.)
- ◆ Sodium thiosulphate (i.v. 0.45 to 0.6 gm in 5 cc water; on alternate days)
- ◆ BAL (i.m.) *British anti-Lewisite*
- ◆ Vitamin C *Dimercaprol*
- ◆ Symptomatic management *C<sub>3</sub>H<sub>8</sub>OS<sub>2</sub>*

**Differential diagnosis**

- Arsenic poisoning

**Fatal dose** - Mercuric chloride: 85 - 260 mg  
 Mercuric cyanide: 650 mg - 1300 mg  
 Mercuric nitrite: 1 - 2 gm  
 Mercurous chloride: 400 - 600 mg

**Fatal period** - 3 - 5 days

**Treatment**

- Gastric lavage : This is done using 5-10% sodium formaldehyde sulphony late; 250 ml is used and approximately 100 ml is allowed to remain in the stomach. This acts as a chemical antidote and reduces the mercuric compound to a mildly toxic compound.
- Egg albumin, milk etc. protein rich substances for protecting the gastric mucosa
- Activated charcoal (3 tsp. in two cups of water) for absorbing mercury salts.
- Hemodialysis (in case of renal damage)
- BAL or dimercaprol (3-5 mg/kg i.m. 4 hourly for first two days; followed by 6 hourly on 3rd day and then 12 hourly for ten days)
- Symptomatic management



- *Āyurvedic* treatment includes prescription of :
  - ♦ *Gandhaka rasāyana*
  - ♦ *Parpatādyariṣṭa*
  - ♦ *Sārivādyāsava* etc.

#### Post-mortem appearance

- Oral cavity : Tongue is white in colour and swollen; mouth is diffuse greyish-white.
- GIT mucosa : Signs of inflammation, corrosion, congestion etc.
- Large intestine and caecum : Intense inflammation, ulceration and even gangrene.
- Liver : Congestion with central necrosis.
- Heart : Fatty degeneration and sub-endocardial haemorrhage.
- Spleen : congestion
- Emaciated body (due to loss of fluid by vomiting and diarrhoea) etc.

#### Medico-legal aspects

- Accidental poisoning (very common)
- Abortifacient
- Suicidal poisoning (rare due to painful death)
- Homicidal poisoning (rare)

## 2. Nāga (Lead)

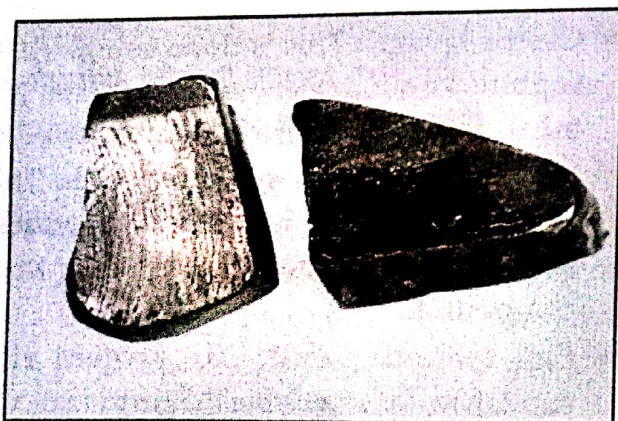


Fig. 11.2 : Nāga (Lead)

English : Lead

Latin : Plumbum

Symbol : Pb

Atomic weight : 207.22

Specific gravity : 11.3

Hardness : 1.5

Melting temperature : 326°C  
Boiling temperature : 1525°C

#### Synonyms

• <i>Sisaka</i>	• <i>Bhujāṅga</i>	• <i>Kuvaṅgaka</i>	• <i>Vabhra</i>
• <i>Śiṣaka</i>	• <i>Phaṇi</i>	• <i>Kuraṅga</i>	• <i>Yogya</i>
• <i>Nāgaka</i>	• <i>Āśivīṣa</i>	• <i>Sindūra-karaṇa</i>	

#### Category - Metallic poison

#### Introduction

- Lead is known to Indians since the Vedic era; during Sage *Caraka's* period it was used in therapeutics.
- Ores of lead are :

S. No.	Ores	Formula
1.	Galena	PbS
2.	Cerrusite	PbCO <sub>3</sub>
3.	Anglesite	PbSO <sub>4</sub>
4.	PbClF	
5.	Lead oxide	PbO

- It is a heavy, steel-grey coloured metal.

#### Signs and symptoms of lead poisoning

- astringent and metallic taste in mouth
- dry throat
- excessive thirst
- burning sensation in abdomen
- vomiting and nausea
- headache
- insomnia
- paraesthesias etc. — pricking sens

#### Types of lead poisoning

- Acute
- Sub-acute
- Chronic

#### Fatal dose

- Lead acetate: 20 gm
- Lead carbonate: 40 gm

Fatal period - 1 - 2 days



**Post-mortem appearance**

- Signs of acute gastro-enteritis
- Thickened and softened mucosa of stomach (with eroded patches)

**Medico-legal aspects**

- Accidental poisoning (common)
- Abortifacient
- Suicidal poisoning

**Treatment**

- Emesis
- Gastric lavage (initially with Magnesium sulphate or sodium sulphate 1% and later with plain water)
- In case of abdominal pain - Morphine/ Atropine or *śūlavajraṇī vaṭī*
- Demulcents
- BAL + Calcium disodium versenate
- Symptomatic treatment

**Treatment of chronic poisoning**

**Āyurvedic management:**

- Combination of *suvarṇa bhasma*, *harītakī cūrṇa* and *sitopalā/ miśrī* (sugar candy) should be given for two to twenty one days.
- *Mahāgandhaka* should be given with juice of sweet *dāḍima* (pomegranate) and *tanḍulodaka* (rice water).
- *Rasamāṇikya* and/ or *svaṛṇa-mākṣika bhasma* should be given along with *navanīta* (fresh butter) and *sitopalā/ miśrī* (sugar candy) for three weeks.

These prescriptions can be given in acute or sub-acute conditions of poisoning.

**As per Modern Toxicology**

- Isolation of the patient
- Sodium/ Potassium iodide (1-2 g.m. TDS)

**3. Vaṅga (Tin)**

English : Tin

Latin : Stannum

Symbol : Sn

Atomic number : 50

Atomic weight : 118.70

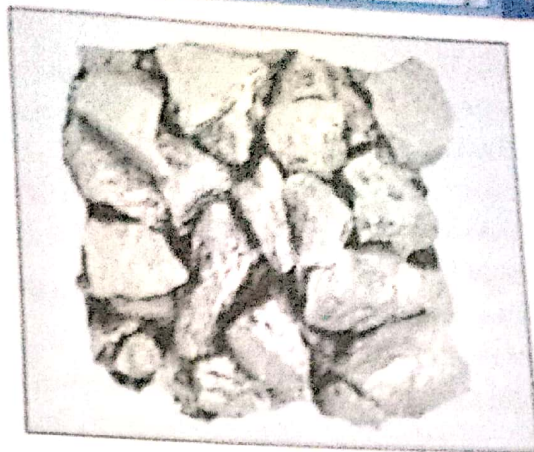


Fig. 11.3 : Vaṅga (Tin)

Specific gravity : 7.3

Melting temperature : 232°C

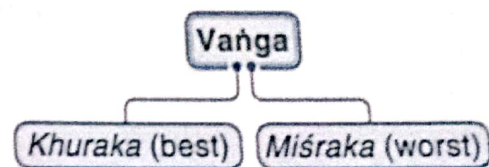
Boiling temperature : 2702°C

Hardness : 6.7

**Synonyms**

- |           |             |           |
|-----------|-------------|-----------|
| • Vaṅgaka | • Śukraloha | • Trapu   |
| • Raṅga   | • Kurūpya   | • Trapusa |
| • Raṅgaka |             |           |

**Classification**



**Category** - Metallic poison

**Features** - It is a soft, malleable, ductile and silvery-white metal.

**Signs and Symptoms**

Disorders caused by consumption of *aśuddha vaṅgaare*:

विशुद्धिहीनं खलु शुक्रलोहं निषेवितं वाप्यमृतं तु नूनम् ।  
 निहन्ति सर्वा खलु कायकान्तिं कुष्ठं किलासञ्च परं  
 विदध्यात् ॥ गुल्मप्रमेहक्षयपाण्डुशोथश्लेष्मज्वरादींश्च  
 भगन्दरञ्च । शुक्राशमरीं रक्तविकारजातान् रोगाननेकान्  
 जनयेच्च नूनम् ॥ Rasatarāṅgiṇī 18.6-7

- loss of *kāya-kānti* (complexion)
- *śvitra* (leucoderma)
- *gulma* (phantom tumour)
- *prameha* (diabetes like condition)
- *hṛdroga* (cardiovascular ailment)



- *śūla* (colic)
- *arśoroga* (haemorrhoids)
- *kāsa* (cough/ bronchitis),
- *śvāsa* (dyspnoea/ asthma)
- *vamana* (emesis)
- *kṣaya* (emaciation)
- *pāṇḍuroga* (anaemia like conditions)
- *śoṭha* (oedema)
- *śukrāsmari* (seminal calculi) etc.

#### As per Modern Toxicology

Acute poisoning by tin is exhibited by irritation of eyes and skin, headache, nausea and vomiting, diarrhoea, dizziness, profuse sweating, difficulty in breathing etc.

Chronic poisoning by tin occurs as an occupational hazard; its signs and symptoms include depression, hepatic damage, malfunctioning immune system, anger and sleeping disorders etc.

Table No 11.3

Signs and symptoms of acute poisoning	Signs and symptoms of chronic poisoning
1. Irritation of eyes and skin	Depression
2. Headache	Hepatic damage
3. Nausea and vomiting	Malfunctioning immune system
4. Diarrhoea	Anger
5. Dizziness	Sleeping disorders etc.
6. Profuse sweating	
7. Difficulty in breathing etc.	

Fatal dose : Uncertain

Fatal period : Uncertain

#### Treatment

- Stomach wash
- Demulcents
- Emetics
- Stimulants etc.

#### Post-mortem appearance

- Signs of gastro-enteritis

#### Medico-legal aspects

- Accidental poisoning

#### Treatment

##### Āyurvedic management:

Powdered *meṣaśṛṅgi* (*Gymnema sylvestris*) should be given along with *sitopala* (sugar candy) for three days. While enumerating qualities of *meṣaśṛṅgi* Sage Bhāvamiśra has considered its *viśāpaha* (anti-poison) action, in his own words:

मेघशृंगी रसे तित्ता घातला श्वासकासहत् ॥  
 रूक्षा पाके कटुः पित्तव्रणश्लेष्माक्षिशूलनुत् ॥  
 मेघशृंगीफलं तित्तं कुष्ठमेहकफप्रणुत् ॥  
 दीपनं स्रंसनं कासक्रिमिब्रणविषापहम् ॥

BP. *Guḍūcyādivarṅgaḥ* 253-255

#### As per Modern Toxicology

- Stomach wash
- Demulcents
- Emetics
- Stimulants etc.

#### 4. Saṅkhiyā (Arsenious oxide)

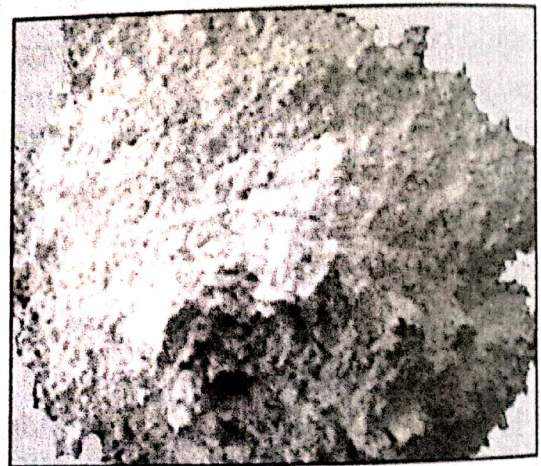


Fig. 11.4 : Saṅkhiyā (Arsenious oxide)

English : White arsenic/ Vitreous

Chemical name : Arsenious oxide

Formula :  $As_2O_3$

Hardness: 3 to 4

Specific gravity: 5.6 to 5.8

#### Synonyms

- |              |            |               |
|--------------|------------|---------------|
| • Śaṅkhaviṣa | • Malla    | • Ākhupaśāna  |
| • Dārumūṣa   | • Phenāśma | • Hatacūrnaka |
| • Dārumoca   |            |               |



**History :** Sage *Suśruta* has enlisted *Saṅkhiyā* (*धनुर्विद्या*) among the *dhātuvīṣas* in the first chapter of *Kalpasthāna* of *Suśrutasaṃhitā*; he writes :

SS.K. 2.5

**Category:** Metallic poison

**Introduction:** It is a colourless, odourless, tasteless & greyish substance.

**Signs and Symptoms of poisoning**

- Fulminant type :
  - Shock
  - Failure of peripheral vascular system etc.
- Gastro-enteritis type :
  - Resembles cholera
  - Chocking of throat
  - Difficulty in swallowing
  - Burning sensation in the GIT
  - Profuse thirst
  - Severe vomiting
  - Watery stools (with high frequency) etc.

**Differential diagnosis**

- Cholera
- Food poisoning (of bacterial origin)

Table No 11.4

S.No.	Arsenic poisoning	Cholera
1.	Fewer cases are seen	Erupts like an epidemic
2.	Symptoms present in acute manner	Symptoms pre-sent in 1 to 5 days
3.	Throat pain prior to vomiting	Throat pain after vomiting
4.	Diarrhea after vomiting	Vomiting occurs after diarrhea
5.	Phlegm, bile and blood streaks are seen in vomitus	Watery and curd water like vomitus
6.	Stool - rice water like and stained with blood	Stool - resem-bles rice water
7.	No change in voice	Hoarse voice
8.	Constricted pupils	No change

Fatal dose : 0.1 to 0.2 gm.

Fatal period : 1 to 2 days

**Treatment**

- Stomach wash
- Emetics
- BAL
- Calcium disodium versenate
- Penicillamine etc.

**Post-mortem appearance**

- Sunken eyeballs
- Cyanosed skin
- Signs of dehydration
- Fatty degeneration of liver etc.

**Medico-legal aspects**

- Homicidal poisoning (very popular)
- Accidental poisoning
- Cattle poisoning

### 5. Tāmra (Copper)



Fig. 11.5 : Tāmra (Copper)

English name : Copper

Latin name : Cuprum

Symbol : Cu

Atomic number : 29

Atomic weight : 63.54

Specific gravity : 8.95 to 9

Melting temperature : 1084°C

Boiling temperature : 2310°C

Hardness : 2.5 to 3

**Synonyms**

- |                  |             |              |
|------------------|-------------|--------------|
| • Śulva          | • Sūryaloha | • Udumbara   |
| • Raktaka        | • Tvāṣṭa    | • Aravinda   |
| • Mleccha-vaktra | • Arka      | • Sūryāṅga   |
| • Nepāliya       | • Bhānuloha | • Lohitāyasa |
| • Tryambaka      | • Raviloha  |              |

**Category -** Metallic poison



### Introduction

*Tāmra* is included among metallic and irritant poisons. Poisoning by copper (*tāmra*) is known to Indians since ages. Explaining fatality by medication taken from quacks Sage *Caraka*, in comparison, has penned down examples of serpent poison and *tāmra* decoction; he quotes -

वरमाशीविषविषं वदधितं ताम्रमेव वा ।  
पीतमत्यग्निमसन्ताप्ता भक्षिता वाऽप्ययोगुडाः ॥  
ननु श्रुतवतां वेशं विभ्रता शरणागतात् ।

CS.Sū. 1.131-132

The *āśivaiṣa* (serpent poison) is good or the intake of *tāmra-koṭha* (decocted copper) or the swallowing of red hot *ayoguda* (iron balls) but the acceptance of medicine from one dressing as scholars is not at all advisable.

सुवर्णरूप्यताम्राणि त्रपुरीतिमयानि च ॥  
जिह्वानिलेखनानि स्युरतीक्ष्णान्यनूजनि च ।

CS.Sū. 5.74-75

Sage *Caraka* has used copper in treatment of numerous medical conditions.

*Tāmra cārṇa* (powdered copper) was prescribed as emetics in case of artificial poisoning.

In Modern times it is extensively used in electrical industries and for making brass, cones and utensils.

### Features

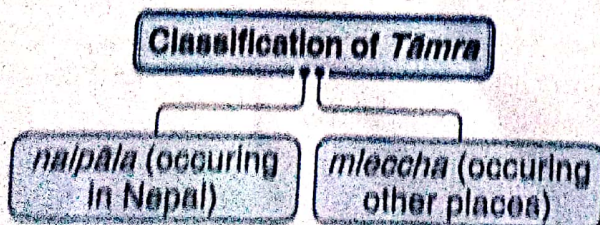
Copper is a brilliant metal having reddish colour.

- Metallic copper - Non-poisonous
- Copper sulphate/ blue vitriol - Poisonous

### Classification of *tāmra*

Sage *Rasa-vāgbhaṭa*, author of *Rasaratnasamuccaya*, has mentioned two kinds of *tāmra* viz.

- *naipāla* (occurring in Nepal)
- *mleccha* (occurring other places).



### Signs and Symptoms

*Kaivāra* Sadananda Sharma has enlisted eight signs and symptoms that are exhibited by consumption of *aśuddha tāmra* (impure copper); he quotes -

वान्तिर्भ्रान्तिश्चित्तसन्तापशोथी गालं कलेदश्चारुचिदाहंमोरी  
इत्यष्टौ वै सूर्यलोहस्य दोषाः पूर्वाचार्यैः कलेशस्य  
सम्प्रदिष्टाः ॥

*Rasatarangini*

- *vānti* (vomiting)
- *bhrānti* (giddiness)
- *citta-santāpa* (restlessness/ anxiety)
- *mukha-śoṣa* (dryness of mouth)
- *kleda* (increased secretions)
- *aruci* (anorexia)
- *dāha* (burning sensation)
- *moha* (delirium)

these are the eight *doṣa* (signs and symptoms) of *sūryaloha* (copper).

### As per Modern Toxicology

- Strong metallic taste in mouth
- Constriction in throat
- Increased salivation and thirst
- Burning sensation in GIT
- Diarrhoea
- Scanty urination etc.

### Fatal dose

- Copper sulphate: 30 gm.
- Copper subacetate: 15 gm.

Fatal period: 1 - 3 days

### Treatment

- Stomach wash (using  $KMnO_4$  10% solution)
- N-penicillamine
- EDTA
- BAL
- Demulcents
- Castor oil
- Symptomatic management

### Post-mortem appearance

- Yellowish skin
- Greenish-blue froth at mouth and nostrils
- Congestion of gastric mucosa etc.



**Medico-legal aspects**

- Suicidal poisoning
- Accidental poisoning etc.

**6. Yaśada (Zinc)**

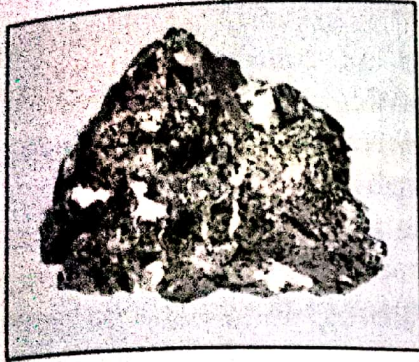


Fig. 11.6 : Yaśada (Zinc)

English : Zinc

Latin : Zincum

Symbol : Zn

Specific gravity : 7.1

Melting temperature : 429°C

Boiling temperature : 980°C

**Synonyms**

- |          |            |                |
|----------|------------|----------------|
| • Yasada | • Jasada   | • Kharparaja   |
| • Jaśada | • Ritihetu | • Raṅgasāṅkāśa |

Category - Metallic poison

**Introduction** - Zinc phosphide is a steel-grey coloured crystalline powder having garlic-like odour.

**Signs and symptoms of zinc poisoning**

As per *Āyurveda*:

अशुद्धं यशदं गुल्मादीन् जनयेतीति तस्माच्छ्लाघ्यम्।  
*Rasatarāṅgiṇī*

Yaśada (zinc) when consumed in *aśuddha* (impure) form causes :

- *gulma* (phantom tumour),
- *prameha* (diabetes like condition)
- *kṣaya* (emaciation)
- *kuṣṭha* (skin ailments).

As per Modern Toxicology

- Abdominal pain
- Vomiting
- Diarrhoea
- Cyanosis

- Fever
- Respiratory distress

Fatal dose - 5 gm.

Fatal period - 24 hrs.

**Post-mortem appearance**

- Garlic-like odour from gastric contents
- Cherry-red coloured blood
- Congestion and oedema of the lungs

**Medico-legal aspects**

- Accidental poisoning
- Suicidal poisoning
- Abortifacient etc.

**Treatment**

**Āyurvedic prescription:**

- Powdered *balā* (*Sida cordifolia*) and *abhayā/ haritakī* (*Terminalia chebula*) should be taken along with *sitopalā/ miśrī* (sugar candy) for three days for ridding off the effects of impure Yaśada (Zinc).

**As per Modern Toxicology**

- Stomach wash
- Purgatives
- Demulcents (e.g. white of egg etc.)
- Symptomatic.

**Kerosene poisoning**

**Introduction**

- It is also known as lamp oil or coal oil.
- It is a combustible hydrocarbon liquid which is derived from petroleum.
- Its usage as a fuel is common in family circle (for cooking and lighting) and industry.
- It is commonly used to power jet engines etc.
- It is a thin and clear fluid; it is mixable in petroleum solvents but not in water.

**Modes of poisoning**

- Ingestion (accidental/ suicidal)
- Inhalation (occupational)
- Skin contact



- Eye contact
- Indiscrete/ non-judicious usage (kill-ing of head lice by application)

#### Signs and symptoms of poisoning

- On ingestion :
  - ◆ breathlessness
  - ◆ abdominal pain
  - ◆ burning sensation along the GIT
  - ◆ vomiting
  - ◆ blood stained stool
  - ◆ convulsions
  - ◆ dizziness
  - ◆ euphoria
  - ◆ loss of consciousness
- On contact :
  - ◆ blisters
  - ◆ erythema
  - ◆ pain
  - ◆ dermatitis (nasal/perioral)

#### Fatal dose

- 40 to 50 ml/kg body weight (on ingestion)

#### Fatal period

- few hours

#### Management of poisoning

- Stabilization of airway and breathing
  - ◆ O<sub>2</sub> inhalation
  - ◆ mechanical ventilation
  - ◆ tracheostomy
- Inj. Aminophylin
- Inj. Hydrocortisone
- I.V. fluids
- Antidotes - Milk/ ghee
- Symptomatic management

#### Post-mortem appearance

- Externally :
  - ◆ odour of kerosene
  - ◆ cyanosis
- Internally :
  - ◆ inflammation of gastric mucosa
  - ◆ pulmonary oedema
  - ◆ degenerative changes in brain/ heart/ liver

#### Medico-legal aspects

- Accidental ingestion
- Suicidal

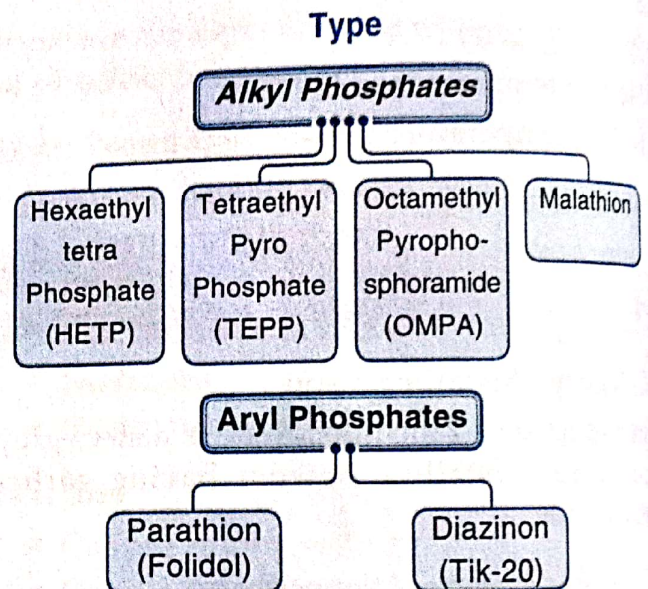
#### Organophosphorus Compounds

#### Introduction

- Used as pesticides, vermicides and rodenticides.
- Chemically these are alkyl and aryl phosphates.
- These are powerful inhibitors of cholinesterase at the myoneural junctions and synapses of the ganglions acetylcholine.

#### Modes of Poisoning

- Inhalation
- Ingestion
- Absorption through unbroken skin.



#### Sign and Symptoms of Poisoning

The prominent Symptoms are (SLUD)

- Salivation
- Urination
- Lacrimation
- Defaecation

#### Fatal dose

- HETP - 160 mg by i.m./i.v. & 350 mg orally
- TEPP - 45-50 mg i.m./i.v. & 100 mg orally
- OMPA - 80 mg by i.m./i.v. & 175 mg orally
- Malathion - 1 gm orally
- Parathion - 80 mg by i.m./i.v. and 175 orally
- Diazinon - 1 gm orally

#### Fatal Period

- ½ hr to 3 hrs.



**Management of Poisoning**

- Decontamination
- Administration of Antidote
- Care of the airway
- Administration of cholinesterase re-activators

**Postmortem appearance**

- Externally
  - ◆ Cyanosed face
  - ◆ Blood stained frothing
- Internally
  - ◆ Stomach mucosa congested
  - ◆ Pulmonary oedema
  - ◆ Hyperaemia of lungs, brain

**Medicological aspects**

- Suicidal.
- Accidental death due to contamination.

**Aluminium Phosphide**

**Introduction**

- Used as pesticide and rodenticide
- Easily available and cheap
- Also known as Celphos, Alphos.
- Frequently misused with homicidal intent in cases of dowry deaths in rural India.

**Mode of Poisoning**

- Ingestion

**Sign & Symptoms of Poisoning**

- Metallic taste in mouth.
- Vomiting and diarrhoea.
- Corrosive action on mucous membrane of mouth, throat and oesophagus.

**Fatal dose**

A part of the tablet (5gm).

**Fatal period**

Few hours to 24 hours.

**Management of Poisoning**

- Clothes should be removed.
- Affected part washed thoroughly with soap and water.

- If Ingested vomiting induced or gastric lavage.
- Administration of vit 'K'.
- Corticosteroids and sedatives.

**Postmortem appearance]**

- Petechial Haemorrhage on skin.
- Congestion of liver, kidney, brain, spleen & lungs.

**Medicological aspects**

- Suicidal
- Homicidal
- House hold poisons

The poisons in daily use found inside the house.

- Babies and children
  - ◆ Baby powder
  - ◆ Crayons
  - ◆ Toys (paints)
- Cosmetics
  - ◆ Nail polish remover
  - ◆ Sun tan lotions
  - ◆ Cuticle remover
  - ◆ Deo/perfumes
- Kitchen
  - ◆ Baking powder
  - ◆ Baking soda
  - ◆ LPG
  - ◆ Kerosene
  - ◆ Matches
- Rat Poisons
  - ◆ Rat Paste
  - ◆ Warfarin
- Miscellaneous
  - ◆ Mouth washes
  - ◆ Furniture polish
  - ◆ Insecticides
  - ◆ Shoe polish
  - ◆ Fluorescent lamps
  - ◆ Ink remover
  - ◆ Moth balls

