

Toxicological Review on 'Upavisha' in Ayurveda

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Abstract

In classical Sanskrit literature, *Ayurveda* was called "the science of eight components" (Sanskrit *aṣṭāṅga*) a classification that became canonical for *Ayurveda*. In Ayurvedic literature *Upavisa* are the group of drugs which were less toxic in nature and not so lethal but produce certain toxic symptoms on consumption or administrations. Our ancient *Acharya* suggests that the poison can become a very good medicine if it is administered properly. This review is a sincere attempt to summarize the information concerning about semi poisonous drugs described in Indian system of medicine in respect to their literary, pharmacological activity, their toxicological effect, fatal period, fatal dose, treatment, postmortem appearance and medicolegal aspect.

Keywords

Ayurveda, Agadatantra, Upavisha, poison

INTRODUCTION

Ayurveda is the science of health and healing. It deals with positive health and describes the ways of life pertaining to its existence, maintenance, protection from diseases and cure when it is victimized by them. It also teaches how to expand the span of life¹. In classical Sanskrit literature, *Ayurveda* was called "the science of eight components" (Sanskrit *aṣṭāṅga*), a classification that became canonical for *Ayurveda*².

1. *Kāya-chikitsā* (Internal medicine)
2. *Kaumāra-bhṛtya* (Pediatrics)
3. *Śhalya-chikitsā* (Surgery)
4. *Śālākya-tantra*
(Ophthalmology / ENT)

5. *Bhūta-vidyā*

(Demonology / exorcism / psychiatry)

6. *Agada-tantra* (Toxicology)
7. *Rasayana-tantra* (Elixirs)
8. *Vājīkaraṇa tantra* (Aphrodisiacs)

Agadatantra is one of the incredible branch of indigenous branches derived from the ancient science of *Ashtanga Ayurveda*. It is still practiced extensively, especially in rural and tribal areas. It is use for diagnosis of poisons and there treatment and also use medicolegal cases in the court of law for the justice.

It has been stated categorically that strong poisons could be the best medicine, if it is used after proper detoxification (*shodhana*), in proper therapeutic dose and formulation. On the contrary, a good medicine may affect

adversely unless it is used for proper person in proper dose³.

Upavisha

Ayurveda has been described eleven number of *Upavisha* are as follows⁴-

Vishatindikabeejamcha twahiphenascha rechakam |

Dhatturbeejam vijaya gunja bhallatakahyah //

Arkaksheeram snuhiksheeram langali karavirakam |

Samakhyato ganoayam tu budhairupavisharbhidh: //

Vishatindikabeeja, ahiphena, rechaka, dhatturbeeja, vijaya, gunja, bhallataka, Arkaksheera, snuhiksheera, langali, karavirakam are the *Upavisa*

described in the literature which can become a very good medicine if it is administered properly. It is a sincere attempt to summarize the information concerning about *Upavisa* drugs described in Indian system of medicine in respect to their Ayurvedic literature, pharmacological activity and their toxicological effect, fatal period, fatal dose, treatment and postmortem appearance and medico legal aspect one by one.

1. Kupeelu

It consists of dried seed of *Strychnos nuxvomica* Linn. of family Fabaceae.

Vernacular names^{5, 24, 25}

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Sanskrit: *Karaskara, Visatinduka, Kakatinduka*

Hindi: Kuchala, Kuchila, Vishtenduka

English: Poison-nut tree, Nuxvomica

Description⁵

Macroscopic

Occurrence: Hard, silky to touch with a satiny sheen.

Shape: Disc-shaped, almost flat

Colour: Greenish-grey to grey

Odour: Odourless

Taste: Bitter

Extra features: Seeds are umbonate but a few seeds somewhat irregularly bent, 10 to 30 mm in diameter, 4 to 6 mm thick, margin rounded or depressed; when cut open, endosperm found to be horny, having a central cavity in which the embryo is situated with two small, thin, cordate, leafy cotyledons with 5 to 7 veins and a terete radical.

Pharmacology: Antimicrobial activity⁶, antibacterial activity⁷, anticancer, antimicrobial, anti-inflammatory, antioxidant, and anti-feederent activity⁸

Ayurvedic pharmacology^{5, 9, 24, 25}:

Guna: *Laghu, Ruksha, Tiktsna*

Rasa: *Katu, Tikta*
Vipika: *Katu*
Virya: *Ushna*

Classification¹⁰:

Ayurveda: *Sthavara visha, Upavisha, phala visha (beeja visha)*

Modern medicine: Neurotoxic spinal excitant poison

Active principle¹¹: Strychnine, Brucine, Loganin

Signs and Symptoms¹²:

Bitter taste, twitching and stiffness of muscles of face and neck, convulsions initially clonic and then tonic, ophisthotonus posture, emprosthotonus posture, pleurosthotonus posture, chest becomes fixed, breathing difficult, cyanosis, blood stained froth at nose and mouth, dilated pupils, painful death.

Fatal period: 1-2 crushed seed (15-30 mg of strychnine)

Fatal dose: 1-2 hrs

Treatment: Shift patient to dark quiet room, anaesthetize the patient, gastric lavage with KMnO₄ antidote phenobarbitone sodium IV, mephanesin as muscle

relaxants, artificial respiration.

PM Appearance: Features of asphyxia, rigor mortis appears early

Medico legal Aspect: Death is usually accidental, rarely used as suicidal and homicidal. Used as aphrodisiac, cattle and arrow poison and to kill dogs and rats.

Important formulations:

Maha Vishagarbha Taila, Ekanggavira Rasa, Vishatinduka Vati, Krimimudgara Rasa, Navajeivanrasa, Agnitundirasa, Laxmivilasarasa, Shulnirmulanarasa, Suptivaatarirasa, Vishatinduka Tail^{13, 24, 25}.

2. Ahiphena

It is dried juice of *Papaver somniferum* Linn. of family Papaveraceae.

Vernacular names^{24, 25}

Sanskrit: *Ahiphena, Aphuka. Tilabheda*

Hindi: Afim

English: Opium, Poppy plant

Description¹⁴

Macroscopic

Occurrence: Dried juice

Colour: White

Odour: Opium

Taste: Bitter

Pharmacology¹⁵: Narcotic, sedative, hypnotic, analgesic,

sudorific, anodyne,
antispasmodic

Ayurvedic pharmacology^{9, 24, 25}:

Guna: *Ruksha, Suksma*

Rasa: *Tikta, Kashaya*

Vipika: *Katu*

Virya: *Ushna*

Classification¹⁰:

Ayurveda : *Sthavara visha,*
Upavisha

Modern Medicine: Neurotoxic Cerebral
Somniferous vegetable poison

Active Principle¹¹:

Morphine ,Codeine,
Papaverine, Thebaine,
Noscapine, Narcine

Semi synthetic
derivatives – Heroin (brown
sugar)

Synthetic derivatives
– Pethidine.

Signs and Symptoms¹²:

Coma, typical opium
smell, cyanosis.
Froath at nose and
mouth, pin point
pupils, cheyne stroke
breathing, slow pulse,
moist cold skin,
hypothermia.

Fatal dose: 200 mg as a
morphine. 2 gm as an
opium. 10 ml of
tincture of opium.

Codeine – 500 mg

Heroin – 50 mg.

Pethidine – 1 gm.

Fatal Period : 6 to 12 hours

Treatment: Gastric lavage, enema
and purgatives , high
tension oxygen and

Coramine, Naloxone
0.4- 2mg IV every 5
min as antidote.

PM Appearance: Smell of opium, face
deeply cyanosed,
black PM lividity,
froth at nose and
mouth, viscera
congested, signs of
coma or comato-
asphyxia.

Medicolegal Aspects: Opium is the ideal
suicidal poison,
commonly used for
suicidal, homicidal
and accidental
poisoning is common
in infants and
children. Morphine is
a drug of addiction, it
considered an
aphrodisiac.

Important formulations: *Vedanantakrasa,*
Nidrodayarasa,
Ahiphenasava,
Harsodayavati,
Mangalodayavati^{13, 24,}
²⁵.

3. Jayapala

It consists of dried seed of *Croton tiglium*
Linn. of family Euphorbiaceae.

Vernacular names¹⁶

Classical Name:

Sanskrit: *Jayapal,* *Dravanti,*
Mukula, Tintidiphala

Hindi: Jamalgota

English: Croton

Description¹⁶

Macroscopic

Occurrence: Seed albuminous, ovate, oblong, slightly quadrangular, convex on dorsal and somewhat flattened on ventral surface

Colour: Brown

Odour: Odourless

Taste: Sweet

Extra features: Seeds are about 12 mm in length and resemble castor seed in shape, dull cinnamon-brown, often mottled with black due to abrasion in testa, caruncle easily detached and usually absent, hilum on ventral side less distinct than that of castor seed, raphe runs along ventral surface of seed, terminating in a dark chalaza at opposite extremity, kernel yellowish and oily, consisting of a large endosperm, enclosing papery cotyledons and a small radicle, no marked odour; kernel gives at first oily taste followed by an unpleasant acidity.

Pharmacology: Cathartic, rubefacient, irritant, purgative, analgesic, antimicrobial, antileukemic action, Antinociceptive and

Smooth Muscle relaxant action^{15, 17-20}.

Ayurvedic pharmacology^{9, 16, 24, 25}:

Guna: *Guru, Snigdha*

Rasa: *Madhura*

Vipaka: *Madhura*

Virya: *Shita*

Classification¹⁰:

Ayurveda: *Sthavar visha, beejvisha, upavisha*

Modern science: Irritant vegetable poison

Active principle¹¹: Fixed oil, Resins & Phorbol esters, Croton, Crotonocide

Signs and Symptoms¹²:

GIT irritation, salivation, bloody stools, tachycardia, vertigo, collapse and death, locally vesication, burning and redness of skin

Fatal dose: 4-5 crushed seeds, 20 drops of oil

Fatal period: Variable

Treatment: Warm water for drink, general lines of treatment.

PM Appearance: Signs of gastroenteritis.

Medicolegal Aspects: Poisoning is commonly accidental and rarely suicidal or homicidal, sometimes used as abortifacient.

Important formulations: *Ichhabhedhi Rasa, Avakancuk Rasa, Jalodari Rasa^{13,24,25}*.

4. Datura

It consists of dried seeds of *Datura metel* Linn. syn. *D. fastuosa* L., *D. alba* Ramph; *D. cornucopaea* Hort. of family Solanaceae.

Vernacular names²¹

Sanskrit: *Kanaka, Dhustura, Ummatta*

Hindi: Dhatura

English: White Thorn Apple

Description²¹

Macroscopic

Occurrence: Seed reniform, compressed, flattened, surface finely pitted

Colour: Light brown

Odour: Odourless

Taste: Bitter

Extra features: Seeds are about 0.6 cm long, 0.4 cm wide; light brown to yellowish-brown in colour; thicker towards the curved edge, which is rugose; large, pale strophiole near micropyle.

Pharmacology: Anticatarhal, febrifuge, antidiarrhoeal, antidermatosis, narcotic, analgesic and CNS depressant action^{15, 22, 23}

Ayurvedic pharmacology^{9, 21, 24, 25}:

Guna: *Tikta, Ruksha, Guru*

Rasa: *Madhura, Katu, Kashaya, Tikta*

Vipika: *Katu*

Virya: *Ushna*

Classification¹⁰:

Ayurveda: *Sthavar visha, Beejvisha, upavisha*

Modern science: Neurotoxic, Cerebral, Deliriant, Stupefying poison

Active principles¹¹:

Alkaloids - Tropane Alkaloids – Hyoscyamine, Hyosine, Atropine etc. and Fixed Oil

Sign and Symptoms¹²: The features are classically described as dry as bone, red as a beet, blind as a bat, hot as a hare and mad as a wet hen. Dryness of mouth, dysphagia, unquenchable thirst, dilated pupils, skin dry and hot, delirium, Carphologia, drowsiness, death.

Fatal dose: 100-125 seeds

Fatal period: 24 hrs

Treatment: Stomach wash, pilocarpine 15mg or prostigmine 1mg S.C., Barbiturates or ether inhalation, purgatives and systematic.

PM Appearance: Congestion of stomach and all other viscera.

Medicolegal Aspects: It commonly known as road side poison, since it is used for road side crimes like robbery, theft, kidnapping and rape. Sometime used for suicide or homicide, accidental poisoning is common.

Important formulations: *Kanakasava, Kanakasundara Rasa,*

*Unmadgajankush
rasa,
Prataplankeshwara
rasa^{13, 24, 25}.*

5. *Bhanga* (*Vijaya*)

It consists of dried leaves of cultivated or wild plants of *Cannabis sativa* Linn. of family Cannabinaceae.

Vernacular names²⁶

Sanskrit: *Bhanga, Madani*
Hindi: Bhaang, Bhanga
English: Indian Hemp

Description²⁶

Macroscopic

Occurrence: Leaves palmately compound, leaflets linear, lanceolate with serrate margins

Colour: Dark green

Odour: Strong odour

Taste: Bitter

Extra features: Leaves are about 5-20 cm long, pointed, narrow at base, upper green and rough, lower pale, downy, leaves of female plants longer than the male, odour, strong and characteristic, taste, slightly acid.

Pharmacology: Hallucinogenic, hypnotic, sedative, analgesic, antiinflammatory¹⁵

Ayurvedic pharmacology^{9, 24-26} :

Guna: *Laghu, Tikta*

Rasa: *Tikta*

Vipaka: *Katu*

Virya: *Ushna*

Classification¹⁰ :

Ayurveda: *Stavara visha, Upavish, Mulavish*

Modern Science: Neurotoxic, Cerebral, Deliriant, Stupefying poison

Active principles¹¹: Resin (Cannabinols, particularly tetrahydrocannabinol)

Signs and symptoms¹²: 1. Stage of Excitement- person is pleased, cheerful, well talkative though rarely running amok, increased appetite, loss of perception of time and space, hallucinations, smell is like burnt rope. 2. Stage of Narcosis-giddiness, confusion, drowsiness, dilated pupils, tingling and numbness, coma.

Fatal Dose: 1) Bhang - 10 gm/kg body wt.

2) Ganja - 8 gm/kg body wt.

3) Charas - 2 gm/kg Abody wt.

Fatal Period: Approximately 12 hours.

Treatment: Stomach wash, symptomatic treatment.

PM Appearance: Features of asphyxia.

Medicolegal Aspects: Is a drug of addiction, rarely used for homicide, commonly used as stupefying poison, accidental poisoning is common, may be running amoke.

Important formulations: *Tryalokyavijaya vati, Madanodaya Modaka*^{13, 24-25}

6. Gunja

It consists of seeds of *Abrus precatorius* Linn. of family Leguminosae

Vernacular names^{24,25}

Sanskrit: *Raktika, Kakananti*
Hindi: *Ratti, Ghungchi*
English: Indian liquorice,
Jequirity, gunchi, rati, Rosary Pea

Description⁵

Macroscopic

Occurrence: Characterised by smooth, glossy surface and bright scarlet.

Colour: Black

Taste: Sweet

Odour: Odourless

Extra features: Patch hilum, ovoid or sub-globular, 5-8 mm long, 4-5 mm broad.

Pharmacology: Uterine stimulant, abortifacient, toxic, teratogenic¹⁵

Ayurvedic pharmacology^{9, 24, 25}:

Rasa : *Tikta, Kashaya*
Guna : *Ruksha, Laghu, Tikta*
Vipika : *Katu*
Virya : *Ushna*

Classification¹⁰ :

Ayurveda: *Sthavara visha, Upavish, mulavisha, beejvisha*

Modern science: Irritant organic vegetable poison.

Active principle¹¹: An albuminous substance (abrine and abralin).

Signs and Symptoms¹²: On ingestion GIT irritation, nausea, vomiting, abdominal pain and diarrhoea, on injection painful swelling, necrosis, vertigo, arrhythmias, convulsions, death.

Symptoms resemble viper snake bite.

Fatal Dose: 1 – 2 seeds if ingested. Tinture by parental root 90 to 120 mg.

Abrin – 0.0001 mg – 0.0002 mg/kg body wt.

Fatal Period: 3 – 5 days.

Treatment: Injection of Antiabrin and symptomatic treatment.

PM Appearance: Petechial haemorrhages under skin, pleura, pericardium and peritoneum, internal organ congested, local necrosis.

Medicolegal Aspects: Commonly used as cattle poison, used as homicidal, used as arrow poison.

Important formulations:
Mritsanjeevani gutika, Gunjabhadra Rasa^{13, 24, 25}

7. Bhallataka

It consists of mature fruit of *Semecarpus anacardium* Linn. of family Anacardiaceae.

Vernacular names^{24,25}

Sanskrit: *Aruskara, Bhallata*
Hindi: *Bhilawa*
English: *Marking Nut*

Description⁵:

Macroscopic

Occurrence: Fruit laterally flattened, drupaceous.

Colour : Dark brown/black

Taste: -

Odour: Odourless

Extra features: Nut 2.5-3 cm long, obliquely ovoid, smooth, shining with residual receptacle.

Pharmacology: anti-inflammatory,

antitumour¹⁵, antiarthritic, anthelmintic, antioxidant and anticancer activity^{27,28}

Ayurvedic pharmacology⁹:

Guna : *Laghu, Tikta, Snigdha*

Rasa : *Madhura, Katu, Tikta,*

Kashaya

Vipaka : *Madhura*

Virya : *Ushna*

Classification¹⁰:

Ayurveda: *Sthavar visha,*

Beejvisha, upavisha

Modern science: Irritant organic vegetable poison

Active principle¹¹: Semicarpol, bhilawanol.

Signs and symptoms¹²: Black vesicles on skin and itching, blisters in throat, GIT irritation, dyspnoea, tachycardia, hypotension, areflexia, delirium, coma, cyanosis, death.

Fatal dose: 5-10gm

Fatal period: 12-24 hrs

Treatment: General line of treatment.

PM Appearances: Blisters seen in the mouth, throat and stomach, features of gastroenteritis.

Medicolegal Aspects: Used for vitriolage, used as abortifacient, applied on skin to put an allegation of assault.

Important formulations: *Bhallataka Rasayana, Bhallatakadi Modaka, Amrita*

Bhallataka Leha, Sanjeevani vati^{13,24,25}.

8. Arka

It consists of dried roots of *Calotropis procera* (Ait.) R. Br. of family Asclepiadaceae.

Vernacular names^{24,25}

Sanskrit : *Ravi, Bhanu, Tapana*

Hindi : *Aak, Madar, Akavana*

English : *Madar Tree*

Description⁵

Macroscopic

Occurrence: Root:- rough, fissured longitudinally and soft

Colour : yellowish-grey

Taste: bitter and acrid

Odour: acrid

Extra Features: Roots externally yellowish-grey while internally white, central core cream coloured, bark easily separated from xylem, odour, characteristic: .

Pharmacology: Ascaricidal, schizonticidal, nematocidal, antimicrobial, antihelmintic, molluscicidal, insecticidal, anti-inflammatory, anti-diarrhoeal, larvicidal, anticancer²⁹⁻³⁹

Ayurvedic pharmacology^{9,24,25}:

Guna : *Laghu*

Rasa : *Katu, Tikta*

Vipika : *Katu*

Virya : *Ushna*

Classification¹⁰ :

Ayurveda: *Sthavara visha, Upvisha*

Modern science: Irritant, Organic Vegetative poison.

Active Principles¹¹: Calotropin. Calotoxin, Uscharin, Calactin.

Signs and symptoms¹²: External vesication and redness, in eyes conjunctivitis, internally act as GIT and cerebrospinal poison, bitter taste, burning pain in GIT, stomatitis, vomiting, diarrhoea, dilated pupils, convulsions, collapse and death.

Fatal dose: uncertain.

Fatal Period: About 12 hours.

Treatment: Stomach wash, demulcents and symptomatic treatment.

PM Appearances: Dilated pupils, froth at the nostrils, stomatitis and inflammation of GIT, viscera and brain are congested.

Medicolegal Aspects: Used as infanticide, cattle poison, arrow poison, used for criminal abortion, rarely used for suicide.

Important formulations:
Mahavishagarbha Taila, Dhanvantara Ghrita^{13,24,25}

9. *Snuhi*

It consists of stem of *Euphorbia neriifolia* Linn. of family Euphorbiaceae.

Vernacular names^{24,25}

Sanskrit : *Sudha Vajradruma, Snuk*

English : Milkhedge

Hindi : Thuhar, Sehunda

Description⁵:

Macroscopic

Occurrence: Stem cylindrical, showing, spiral ridge portion only

Colour : Green

Taste: Acrid

Odour: Odourless

Extra Features: Dried stem, tough with pairs of sharp stipular thorns, with hollow space in centre containing white reticulate mass, taste, acrid.

Pharmacology:

Hepatoprotective⁴⁰, anti-inflammatory, analgesic⁴¹, antioxidant⁴², immunomodulatory activity⁴³

Ayurvedic pharmacology⁹:

Guna : *Guru, Tikshna*

Rasa : *Katu, Tikta*

Vipaka : *Katu*

Virya : *Ushna*

Classification¹⁰:

Ayurveda: *Sthavara, Upavish*

Modern Science: Irritant Organic vegetable poison

Active Principle^{5,10}: Euphorbine, Euphol, Euphorbol, taraxerol. Resin, gum and triterpenes

Signs and symptoms¹²:

Ingestion of latex could be fatal, burning of skin, inflammation of the eyes and may be temporally blindness resulting from contact.

Fatal Dose: Uncertain (25 to 30 ml of latex).

Fatal Period: Uncertain (3 days).

Treatment: Wash contact part with running water and symptomatic treatment.

PM Appearances: Signs of inflammation of contact part.

Medicolegal Aspects: commonly accidental poisoning.

Important formulations: *Citrakadi Taila, Abhaya Lavana, Avittoladi Bhasma, Vajrakshara*^{13, 24,25}

10.Langali

It consists of dried tuberous root of *Gloriosa superba* Linn. of family Liliaceae.

Vernacular names^{24,25}

Sanskrit : *Kalihari, Garbhanut, Halini, Agnisikha*

Hindi : Kalihari

English : Glory Lily

Description⁵

Macroscopic

Occurrence: Tuberous roots thick, almost cylindrical or slightly laterally flattened

Colour : brownish

Taste: acrid and bitter

Odour:-

acrid

Extra Features:

Roots occurring in pieces of 15-30 cm long and 2.5 - 3.8 cm thick, often bifurcated with tapering ends, resembling a plough-share, one arm generally more than double the length of the other.

Pharmacology:

Antiinflammatory, alterative, anthelmintic, antileprotic¹⁵, antifungal activity, antitumor/cytogenic activity, antipoxviral activity, anticoagulant activity⁴⁴⁻⁴⁸

Ayurvedic pharmacology⁹:

Guna : *Sara, Tikta*

Rasa : *Tikta, Kashaya, Katu*

Vipaka : *Katu*

Virya : *Ushna*

Classification¹⁰ :

Ayurveda: *Sthavara visha, Kandavisha, Upavish*

Modern science : Irritant organic Vegetable poison.

Active Principle^{5,10}: Superbine, Gloriosine, Colchinine, Alkaloids and Resins.

Signs and symptoms¹²: burning pain in mouth, throat and stomach, nousea, vomiting, diarrhea, sweating and death.

Fatal Dose: Uncertain (more than 750 mg)

Fatal period: uncertain.

Treatment: Stomach wash, demulcent and symptomatic treatment.

PM Appearances: May be inflammation of GIT.

Medicolegal Aspects: Commonly used as abortifacient, suicidal and homicidal are rare, mostly accidental poisoning.

Important formulations: *Nirgudi Taila, Kasisadi Taila, Mahavishagarbha Taila*^{13,24}

11. *Karavira*

It consists of dried leaves of *Nerium indicum* Mill. Syn. *Nerium odorum* Soland of family Apocynaceae.

Vernacular names²⁴⁻²⁶

Sanskrit: *Hayamaraka,*

Harapriya, Asvamara

Hindi: Kaner

English: Indian Oleander

Description²⁴

Macroscopic

Occurrence: Leaves exstipulate, linear, lanceolate, 10-20 cm long and upto 2.5 cm wide, thick, dark green and shining above and dotted beneath

Colour : Dark green

Taste: Bitter

Odour: Odourless

Extra Features: Leaves venation unicostate, reticulate with midrib being stout and the secondary veins arising in very large number, running parallel, stomata anamocytic.

Pharmacology: Cardioactive (digitalis-like effect) and diuretic, anti-inflammatory, antifungal, insecticidal¹⁵, antioxidant Activity, analgesic activity, antiulcer activity, antimicrobial activity, anti diabetic activity⁴⁹⁻⁵³

Ayurvedic pharmacology²⁴⁻²⁶:

Guna: *Tikta, Laghu, Ruksa*

Rasa: *Katu, Tikta, Kashaya*

Vipaka: *Katu*

Virya: *Ushna*

Classification¹⁰ :

Ayurveda: *Sthavar visha, Mulavisha, Upavisha*

Modern science: Cardiac Poison

Active Principle¹¹: It contains a glycoside named Nerin, oleandrin

Signs and symptoms¹²:

GIT irritation, contact dermatitis, dilated pupils, cardiac failure, weak pulse, decreased B.P., twitching of muscles, titanic spasm and lock jaw, on spinal cord action like strychnine.

Fatal Dose: Root - 15 gms, Leaves- 5 – 15 in number.

Fatal period: About 24 hours.

Treatment: Stomach wash, use of anaesthetic agents, inj. Morphine and symptomatic treatment.

PM Appearances: Petechial haemorrhages on heart, congestion of viscera.

Medicolegal Aspects: Commonly used for suicide and abortion, used as cattle poison, rarely used for homicide, sometimes accidental poisoning.

Important formulations: *Karviradi Taila*^{13, 24,25}

CONCLUSION

Ayurveda has considered the mental and physical diseases as two separate specialized subjects. *Agadatantra* is one of the incredible branch of indigenous branches derived from the ancient sciences of *Ashtanga Ayurveda*. *Upavisha* are described in *Agadatantra* and *Rasashastra* being used as medicine. All *Upavisha* are reviewed briefly with its macroscopic characters, medico legal aspects and toxicological

effects. All the drugs are showed their significant pharmacological activities even they are semi poisonous drugs. Toxicological effect, fatal period, fatal dose, treatment, postmortem appearance and medico legal aspect are the main features of this review. The information available in this review could be helpful to scientist, drug designers, forensic experts, and other scientific bodies related to Ayurvedic research. More research is needed in on these medicinal plants to establish their claimed therapeutic potential.

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