



## Upavisha Karaveer (Nerium Oleander Linn.) – A Review

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**Abstract :** Karaveera is a well known poisonous plant in Indian system of medicine. It is included in Upavisha by Ayurveda texts. Being a poisonous plant, Karaveera has been using since the ancient times by Ayurveda physicians. The oleander plant grows wild in India. All the species of Karaveera are poisonous in nature. Its graceful flowers are used as offerings in the temples. This review article includes the overall information about the poisonous plant Karaveera, it's, Toxicological aspect, Medicolegal aspect and therapeutic uses mentioned in Ayurveda and in other systems of medicine.

**Keywords:** Karaveera, Upavisha, Therapeutic uses, Cardiac poison.

### INTRODUCTION .

*Nerium oleander* most commonly known as oleander or nerium, is a shrub or small tree cultivated worldwide in temperate and subtropical areas as an ornamental and landscaping plant. *Nerium* contains several toxic compounds, and it has historically been considered a poisonous plant. However, its bitterness renders it unpalatable to humans and most animals, so poisoning cases are rare and the general risk for human mortality is low.

### OLEANDER

#### BOTANICAL NAME-

*Nerium oleander* Linn.

**Family-** Apocynaceae (Kutaj Kula)

#### Vernacular Names-

Sanskrit

i) Ashwamar - kills horses

ii) Hayamar - kills horses

Marathi - Kanher

Hindi - kaner

Eng : Indian oleander, Sweet-scented oleander

Kan : Kanagilu, Paddale, Dhavakaneri

Mal : Arali, Kanaviram, Karaviram

San : Karavirah (s)

Tam : Aral, Irattai sivapparali, Vellai arali

Tel : Gannēru, Karaviramu, Kasturipattu

This is mainly cardiac poison and it is mainly of two types.

I) *Nerium odorum* (White Oleander)

II) *Cerebra thevetia* (Yellow Oleander)

**WHITE OLEANDER (*Nerium odorum*)**

There are two main species of *Nerium*, which is a large ornamental shrub belonging to family Apocynaceae. *Nerium oleander* is the European species while *Nodorum* is commonly seen in India. Leaves are long and pointed, while the flowers are white or pink and arranged in clusters. All parts of the plant are toxic, particularly the seeds, stem and root.

**Vernacular names -**

- A) Sanskrit  
 i) Ashwamar - kills horses  
 ii) Hayamar - kills horses  
 B) Marathi - Kanher  
 C) Hindi - kaner  
 D) English - Oleander, karan, rose laurel  
 Sweta Karveer - 1 White or sweet scented oleander  
 Peeta Karveer - Exile or yellow oleander, lucky nut  
 Shwet/Rakta Karveer

**Classification:**

- A) According to Ayurved  
 i) Sthaavar visha - Vegetative  
 ii) Moolavisha - (Sushrut)  
 iii) Upavisha - Bhaavprakaash & Rasatangi  
 B) According to Modern Medicine Cardiac Poison

**General Description:-**

It is lactiferous shrub of height about 3 meters.

**Leaves** - 10 to 15 cm in length & 2.5 cm in breadth, long & pointed, the upper surface is dark green.

**Flowers** - Whitish or reddish, scented or with mild odour & are in inflorescence. The honey of this flower is poisonous.

**Fruit** - It has flat legume of length 8 to 10 cm & it contains light weighted brown coloured with many seeds.

**Taste** – Bitter

**Pharmacology:**

Cardioactive (digitalis-like effect) and diuretic, anti-inflammatory antifungal, insecticidal, antioxidant Activity analgesic activity antiulcer activity Antimicrobial activity anti diabetic activity

**Ayurvedic pharmacology:**

Guna: Tikta, Laghu, Ruksha

Rasa: Katu, Tikta, Kashaya

Vipaka: Katu

Virya: Ushna

Mechanism of Action - Glycoside nerin has digital is like action on the heart.

**1. Active principles -**

Nomenclature of oleander glycosides is confusing with different authorities naming them differently. The following are generally accepted names:

- |              |              |
|--------------|--------------|
| A) Oleandrin | B) Neriin    |
| C) Folinerin | D) Rosagenin |

**Figure 1****Figure 2**

**2. Properties and uses:-**

The roots are bitter, acrid, astringent, anthelmintic. thermogenic, aphrodisiac, stomachic, febrifuge and diuretic. They are useful in cardiac asthma, strangury, renal and vesical calculi, chronic stomachalgia, arthralgia, leprosy, pruritus and ulcers. The root bark is very specific for ringworm. The leaves are a powerful repellent and are used for scabies, haemorrhoids and vitiated conditions of vata. The juice of the tender leaves is good for ophthalmia with copious lacrimation. The flowers are reported to have the property of purifying the air.

- A) Used commonly by quacks in the treatment of various ailments (leprosy, malaria, skin and venereal diseases, etc.).
- B) Illicit abortifacient.

**3. Signs and symptoms -**

A) External - Due to smell of dried flower, vertigo, headache, dyspnea, nausea may occur.

B) Internal the toxic symptoms are mainly due to the irritant action on gastrointestinal tract & the digitalis like action on heart.

The main symptoms are difficulty in swallowing (dysphagia), difficulty in speech (dysarthria), lock jaw, abdominal pain, vomiting, profuse frothy salivation, diarrhea & irritability.

The pulse is low in initial stages but latter becomes rapid & low volume also seen. Rapid respiration is Convulsions are seen in muscles of limbs which are prominent on one side of limbs. Latter on these convulsions progress in tetanic convulsions. Patient becomes exhausted & feels drowsy, Pupils are dilated. In latter stages, coma may be seen & death is due to heart failure.

**Differential Diagnosis:-**

Poisoning due to digitalis & Tetanus.

**4. Fatal dose -**

- Leaves 5 to 15.
- Root - 15 gms

**5. Fatal period -**

Usually dies within 24 hrs.

**6. Treatment of Poisoning:****A) According to Modern -**

- i) First give stomach wash & then do the treatment according to symptoms.
- ii) The anesthetic drugs should be used.
- iii) Inj. Morphine whenever necessary.
- iv) For cardiac arrhythmia give antiarrhythmic drugs like lidocaine & phenytoin 100-200 mg in QID doses.
- v) Monitor blood pressure Propranolol in 1-3 mg. OD may be used.
- vi) For AV block - Inj Atropine may be used
- vii) Decontamination and viii) ECG monitoring
- ix) Sodium molar lactate transfusion with glucose and one mg. atropine, 2c.c. Adrenaline and two mg. nor adrenaline is beneficial for the correction of cardio-vascular abnormalities.
- x) Correction of fluid and electrolyte balance.

**B) According to Ayurvēda -**

Buffalo curd mixed with sugar or Buffalo milk or the powder of arkatvaka (kariratvaka) mixed with water if consumed orally it cures all poisonous effects of karavira.

**7. Postmortem appearances -**

- No such specific findings are seen.
- Petechial hemorrhages can be seen on pericardium.
- Congestion can be seen on stomach & small intestine.
- The nerium is resisted to heat so the traces of nerium may be detected in burnt corpus.

**8. Medico-legal Importance -**

- 1) In rural part of India, this nerium is used by ladies suffering from dowry or any marriage problems for purpose of suicide. For this decoction of root or leaves is used.
- 2) The root is used internally & locally for criminal abortion.
- 3) Accidental poisoning can cause to following reasons:
  - Any part of white oleander is used for hypnotism.
  - The decoction of leaves is used externally for inflammation treatment.
  - The root is used for venereal diseases.
  - The juice of root is used for malignant & benign turnover.
- 4) It is used occasionally for homicide.
- 5) Used for cattle poisoning. For this root os mixed with cattle food or juice is applied on piece of cloth & introduced in rectum of cattle.
- 6)The smoke liberated from the burning of plant of white oleander may cause severe toxic symptoms.

**YELLOW OLEANDER (*Cerebra thevetia*)**

This is a large, ornamental shrub with oblong leaves and clusters of orange or yellow tubular flowers. It belongs to family Apocynaceae and various species include *Thevetia peruviana*, *Cerebra thevetia*. All parts of the plant are toxic, especially the leaves and fruits. Fruits are black, globular and fleshy.

**Classification:**

- A) According to Ayurved Sthaavar: Vegetative poison
- B) According to Modern science: Cardiac poison.

**General Description:**

It is a evergreen large shrub on small tree of height 12 ft.

Leaves - longitudinal, alternate, pointed.

Flowers - yellow colored, Bell shaped.

Fruit- Green, round & 5 cm in diameter. Inside fruit a triangular, light brown seed is there which has a groove on edges. The inner seed has two compartments, each of them contain a light yellow seed. From all part of plant latex comes out.



**Figure 3**

**Active principle & Mechanism of Action**

It contains 3 glycosides -

- 1) Thevetin- It is a potent cardio toxic poison
- 2) Thevotoxin - It is less potent and acts like digitalis.
- 3) Cerberin - It acts like strychnine.

**Fatal Dose-**

Seeds	-	8 to 10
Root	-	15 to 20 gms
Leaves	-	5 to 10

**Fatal Period** - 24 hours.

**Toxic symptoms:**

When ingested as root & seeds:

- A) Burning pain in the mouth, esophagus and stomach followed by dryness, a sensation of tingling and numbness of the tongue.
- B) Vomiting and diarrhea.
- C) Headache, vertigo, dizziness and sense of fainting.
- D) Pulse becomes irregular blood pressure falls, pupils are dilated like digitalis, and heart rate becomes irregular (arrhythmia) and the patient dies of peripheral circulatory failure. Heart block is common.
- E) Convulsions may precede death.

**Differential Diagnosis:**

Poisoning due to digitalis.

**Treatment of Poisoning:****According to Ayurved -**

First give the emetics & then give clarified butter (Goghritt)

**According to Modern Medicine:**

- 1) Stomach wash.
- 2) ECG Monitoring
- 3) Symptomatic treatment: Use of anesthetic agents, inj. Morphine
- 4) Dr. D. Bishta of Pondicherry Medical college, found that the following treatment is most effective in the poisoning of yellow oleander. For this the following medicines are given simultaneously but separately, through different I.V. Fluids:
  - (a) To overcome acidosis gives sodium molar lactate solution through first bottle.
  - (b) For heart blockage treatment, give 5% glucose solution + 1.2 mg Atropine + 2 ml. of adrenaline 1 in 1000 + 2 mg Noradrenaline if patient is in hypotension.

**Autopsy findings:-**

In autopsy inflammation of gastrointestinal tract, congestion of different organs, dilated veins of body & bruises in heart are the peculiar signs. Yellow oleander is resistant to the process of decomposition so traces may be detected in buried or decomposed body in forensic examination.

**Medicolegal Importance:**

- 1) Suicide - In some part of India, it is used by women for suicide to get relief from dowry or marriage problems. For this the pulp of seeds is smashed & eaten.
- 2) Accidental - It is used for the treatment of the fever like malaria. In such cases accidental poisoning may occur.
- 3) Homicidal - Rarely used for homicide.
- 4) Abortive Poison - Used for the purpose of criminal abortion.
- 5) Cattle poison - The powder of seeds is mixed with cattle food & used for Cattle poisoning.

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