



## Critical Review of Schedule E(1) Poisonous Plant *Nerium odorum* syn *N.indicum* (Karveer) of Ayurvedic Medicines

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#### Abstract-

*Nerium indicum* with Syn. *Nerium odorum* is a poisonous plant mentioned in Ayurvedic Classical texts. It has been Penned down by Saints and Sages of Ayurveda Centuries ago for Varied uses in Medical treatment ranging from eyes diseases, skin diseases to Venereal diseases. It is a Schedule E(1) drug which comes under the List of Poisonous Plants in Drugs and Cosmetic Act 1940. Even though it is Poisonous but it has immense potential for treating different diseases and is a plant with hope in coming future as it has been found in preliminary studies to be anti-Cancerous, anti-tumorous and effective for cardio-Vascular diseases.

**Key words:** *Nerium* , Kaner , Ashvamar, Neriodorin, Neriodorein , Karabin.

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#### Introduction-

Ayurveda is a science that considers everything is useful even though it is a poison. As per the Concepts of Ayurveda there is nothing ‘Anaoushadhi’(not useful for medicinal purpose) infact every thing is ‘Aoushadhi’(useful for medicinal purpose) , the only thing that matters is the Dose. Some herbs used in Ayurveda comes under schedule E (1)[Rule 161(E) OF Drugs and

Cosmetics Act ,1940 , one such plant is Nerium indicum Mill. (Karveera). Schedule E(1) is the List of Poisonous Substances under Ayurvedic and unani system of Medicines. Hence there dose and usage is to be monitored. Karveera is being used in Ayurvedic medicines since ages and patients have benefitted from them. It is being used both Locally and Internaly. There are many formulations in Charka and Sushruta for its Internal use in Skin and Abdominal diseases. The herb Nerium indicum Mill. has Syn. Nerium odorum Soland., Nerium odoratum Lamk., Nerium latifolium Mill.(Vol. 1, 1982 ,Pharmacognosy of Indigenous Drugs CCRAS). This Poisonous Plant is of great interest to both Ayurvedic and Modern Science. Various Studies have been done on it for its chemical structure and still going on to develop promising medicines for various diseases in future. This paper will help to know more about this Poisonous plant.

The Plant ‘Karveera’ as the name suggests is one which has a ‘fast acting potential’, it is highly active in its action.

### **Vernacular Names of the Karveera-**

English= Indian Oleander, Sweet scented oleander<sup>13</sup>, Roseberry Spurge<sup>13</sup>; German= Wohlriechender<sup>13</sup>; Hindi=Kanera, karbera<sup>13</sup>,Karber<sup>13</sup>; Bengali=Karavi,<sup>1,13</sup> Karabi<sup>1,13</sup>; Marathi=Kanher<sup>1,13</sup>; Gujrati=Kaner<sup>1,13</sup>; Telugu=Erra Ganneru<sup>1,13</sup>,Karaviramu<sup>13</sup>, Kasturipatte<sup>13</sup>; Tamil=Alari<sup>1,13</sup>, Arali<sup>13</sup>; Kannada= Kangilu<sup>13</sup>, Paddale<sup>13</sup>;Konkani=Dhavekaneri<sup>13</sup>; Arab=Sumula Himara<sup>13</sup> Kharazahrah<sup>13</sup>; Persian= Dephali<sup>13</sup>.

### **Classical Ayurvedic categorization of the plant as per its scition-**

- ❖ Charaka=Kusthaghna<sup>9</sup>, Tiktaskandha<sup>11</sup>.
- ❖ Sushruta= Tikta varga<sup>28</sup>, Lakshadi gana, Sirovirecana
- ❖ Vagbhata=Lakshadi.

In Samavidhana Brahman ‘Karveer’ is delineated, it is used for brushing the teeth. Karveer flowers are described in Mahabhasya. Bruhat trayi have quoted Karveer in their works (C.Chi 7/104;105 and A.H.Chi. 19/62). This gives us a clue that there were two varieties viz. Rakta (red) and Sveta (white). The roots of a plant called Karveeraka are mentioned as poisonous (Ch. Chi. 23/10). Sushrut quoted ‘Karveer Soma’ (Su Chi. 29/5,13, 20, 26, 31) as one of the 24 varities of Soma. Charak advocated Karveer for Snana (bathing) and Pana (internal administration). Sushruta indicated Karveer Kshar in Ashmari treatment. But, Dhanwantri Nighantu specifically advised external application as is the case with Bhav Prakash Nighnatu. Rasa Vagbhata quoted it among the Upavishas.<sup>11</sup>

### **Synonyms of Karveera in Ayurvedic Texts -**

Shatkumbh<sup>1,51</sup>, Shatkunda<sup>3</sup>, Kunda<sup>3,51</sup>, Shakunda<sup>3,51</sup>, Shaatkumbha<sup>51</sup>, It bears hundreds of flowers.

Ashwamarak<sup>1,3,51</sup>, Ashwaha<sup>2</sup>, Aswaha<sup>2,51</sup>, Aswamohak<sup>2</sup>, Ashwaghna<sup>2,3</sup>, Ashwanashak<sup>3,51</sup>, Ashwanta<sup>3</sup>, Ashwantak<sup>51</sup>, It takes the prana of Ashwa (horse). It is fatal to horse.

Chandat<sup>1</sup>, Chandak<sup>2</sup>, Prachanda<sup>2,5</sup>

Due to its poisonous nature it is Ugra (Fast acting).

Laguda<sup>1</sup>

Hayamar<sup>3,5</sup>, Hayagna<sup>3,5</sup>, Hayari<sup>3,5</sup>,

Due to its poisonous nature, it kills the horses.

Pratihaas<sup>3,5,6,7,8,10</sup>

Ashwarodhak<sup>3,5</sup> = It stops horses.

Veerak<sup>3,5</sup> Veer<sup>5</sup> Mahavir<sup>3</sup> = It is called as veer or veerak due to its fast acting nature

Shwetapushpaka<sup>2,3,5</sup> = Due to white coloured flowers.

Nakarah<sup>3,5</sup>

Sthaladikumud<sup>3</sup>

Divyapushpa<sup>3,5</sup>

Harpriya<sup>3,5</sup> It is loved by gods.

Gouripushpa<sup>3,5</sup>

Siddhapushpa<sup>3</sup>

Shatpraas<sup>4,1</sup>

- Billions of leaves grow up like hairs.
- Many flowers grow and sheds down everywhere.

- Sheetkumbha<sup>5</sup>
- Turangari<sup>5</sup>
- Rangari<sup>5</sup>
- Shankudra<sup>5</sup>
- Tungari<sup>5</sup>
- Sthalakumud<sup>5</sup>
- Tiddhapushpa<sup>5</sup>
- Karnikar<sup>63</sup>

### Rasa Panchak (Ayurvedic Principles of Drug-Action) –

The properties of drug decides its usage. Any drug whose action is not known can be identified and studied. The Ayurvedic identification of drugs is based on the Rasa-Panchak, which is a five factors based definition of any substance. Karveer is also defined as per this definition.

- **Ras(Taste)**<sup>1,2,4,5,6,7,8,10</sup> - Its Rasa is Katu(Pungent), Tikta(Bitter), Kashay(Astringent).

- **Vipaka(Digestion and Metabolism)**<sup>1,2,3,4,5,6,7,8,10,-</sup> Its Vipaka is Katu (Pungent taste post-digestion)..
- **Veerya(Potency)**<sup>1,2,3,,4,5,6,7,8,10-</sup> Its virya is Ushna.
- **Guna(Quality)**<sup>1,2,3,4,5,6,7,8,10-</sup> The Qualities of Karveer are-
  - ❖ Laghu (Light)
  - ❖ Ruksha(Dryness),
  - ❖ Teekshna(Sharpness)<sup>5</sup>
- **Karma(Action)**<sup>3-</sup>
  - ❖ Kapha-vatahara (Pacifies Vata and Kapha dosha)
  - ❖ Kushthaghna(Treats Skin diseases)
  - ❖ Vranahara (Treats ulcer)
  - ❖ Chakshushya.(Good for Eyes)
  - ❖ Krumihara(Treats worms infestation/Helminthiasis)
- **Indications in different diseases**<sup>1,2,4,5,10-</sup>
  - ❖ Indralupta(Alopecia)
  - ❖ Palitya(Greying of hairs)
  - ❖ Dushta Vrana (Non-healing Ulcer)
  - ❖ Upadamsha( Syphili/Soft Chancre)
  - ❖ Kustha(Diseases of Skin)
  - ❖ Krumi(Worms infestation)
  - ❖ Kandu (Itching)
  - ❖ Netra roga (Eye diseases)
  - ❖ Visha vikar (Diseases due to poison)
  - ❖ Arsha(Haemorrhoids)

#### **Parts Used**<sup>1,4,10-</sup>

The part of the plant which is to be used mentioned in texts is Root/root bark.

#### **Dosage**<sup>-10</sup>

For Medicinal Purpose the amount of Powder to be used should be between 30-125 mg.<sup>11</sup>

#### **Varga( Classical Ayurvedic Taxonomy)-**

Guduchyadi Varga.<sup>1,5</sup>

Kutajadi Varga<sup>2</sup>

Karveeradi Varga<sup>6,7</sup>

#### **Visha Vargikaran(Classification of Poison)-**

It is mentioned under the category of Sthavara Visha (Poisons of plant origin).

It is mentioned as upavisha. Though whole plant is poisonous but since most poisonous part is Moola (Root) therefore according to visha adhisthana it is Moola Visha (Root Poison).

### **Shodhan (Purification)-<sup>13</sup>**

Poisonous substances are to be purified before their usage, this is to make them non-toxic. Karveera is purified by doing its swedana in Godugdha in Dolayantra for 1 prahar .

### **Types-**

There are two types of Karveer according to Bhavprakash and Dhanwantari Nighantu Shwet and Peeta Karveer.<sup>1,7</sup> There are 4 types of karveer-Shwet, Rakta, Peet, Krishna.<sup>6</sup> According to Indian Materia medica it has two types namely- White flowered and Red flowered.<sup>3</sup> Properties of both the Oleanders are identical.<sup>3</sup>

### **Amayik Prayog (Internal usage)-<sup>4,9</sup>**

Karveer is a highly toxic plant. It induces toxicity after oral consumption.<sup>1</sup> Thus its use is indicated up to external application in the form of lepa, taila, Patrabandhan etc. But there are references of it being used orally for treatment of diseases.

As per Sharangdhara The root beaten in to a paste with water is recommended to be applied to cancers and ulcers on the penis.

Chakradatta has mentioned its use as juice of leaves to be instilled into eyes in Ophthalmia with Copious lachrymation.

Karveer being very much poisonous, is not used internally therefore Charaka has mentioned its use in Kushtha (Skin Diseases) but on contrary to this Sushruta has mentioned its internal use in Ashmar (Urinary tract Stone).<sup>5</sup>

### **Kalpa (Medicinal Formulations)-**

The Ayurvedic Classical Texts have many formulations which contain Karveer for the treatment of various diseases. Some of which are mentioned below-

1. Sidhmakusthhar Yoga<sup>14</sup>
2. Churna of Kushtha, Amruta, Kantakari, Kampillak, Musta, Lodhra, Gandhak, Vidanga, Manashila, **Karveer Tvak** mixed in Sarshap Thailam is useful for topical application in Kushtha.<sup>15</sup>
3. Churna of Haridra, Daru Haridra, Kutaj beeja, Karanj beeja, Pravala, **Hardwood of Hayamar ( Karveer)** mixed in Tilakshar is useful for topical application in Vidradhi. This is called as Haridradi Lepa.<sup>16</sup>

4. Churna of Manashila, Kutaj Tvak, Kustha, Karanja, Karveer Moola with Tushodak is useful in Kustha. This combination is called as Manashiladi Lepa.<sup>17</sup>
5. Kushthghna Mahakashay<sup>19</sup>
6. Churna of Karanja, **Karveer**, Arka, Malati kakubha, Asana is regarded as Prashasta Datun.<sup>20</sup>
7. Churna of Danti, Trivrut, **Karveer**, Karanja, Kutaj is useful in Pittaj kushtha.<sup>21</sup>
8. Lepa of Shwet Karveer Moola, Kutaj, Karanja, Darvi, Suman Praval is Siddha lepa in Kustha.<sup>22</sup>
9. Kwatha, Lepa, Awachurnana and Garshan of Ahwamar is useful in Kustha.<sup>23</sup>
10. Kusthadya Thailam.<sup>24</sup>
11. Shwet Karveeradya Thailam<sup>25</sup>
12. Shwet Karveer Pallavadya Thailam<sup>26</sup>
13. Kanakshiri Thailam<sup>27</sup>
14. Snana, Pana and lepa of Vrusha, Kutaj, Saptaparna, **Karveer**, Karanja, Nimba, Khadir mixed in Gomutra is useful in Krumi, Kustha.<sup>28</sup>
15. Pradeha of Triphala, Padmak, Ushir, Samnga, **Karveer** is useful in Kaphaj Visarpa.<sup>29,47</sup>
16. Anjana of Daruharidra, Vyosha, Haridra, **Karveer**, Karanja, Nimba, Surasa prepared by triturating in Basta Mutra is useful in Visha vikar.<sup>30</sup>
17. Vranaropan Kashay<sup>31</sup>
18. Mahaneel Thailam<sup>32</sup>
19. Vidangadi Thailam<sup>33</sup>
20. Combination of Chirbilva, Bhallatak, Danti, **Karveer** and Chitraka is useful in Darana of Shotha.<sup>35</sup>
21. Kshar of Patla and **Karveer** is used in Ashmari Chikitsa.<sup>38</sup>
22. Vajrak Thailam<sup>39,51</sup>
23. Mahavajrak Thailam<sup>40,51</sup>
24. Karveer siddha Thailam in Apachi chikitsa<sup>41</sup>
25. Lepa of **Karveer** with Sheeta Dravayas is useful in Madatyayanit Daha.<sup>43</sup>
26. Karveeradya lepa<sup>48</sup>
27. Shwetakarveeradi lepa<sup>49</sup>
28. Mustadi Avachran<sup>50</sup>
29. Taila Siddha with Kustha, **Ashwamar**, Arka, Snuhi Ksheer, Saindhav is beneficial in Kustha and Visha vikar.<sup>52</sup>
30. Palitnashak lepa<sup>54</sup>
31. Jyotishmati Thailam<sup>55</sup>
32. Bhdrakshayadi Thailam<sup>56</sup>
33. Karveeradi Agad<sup>57</sup>
34. Sahacharadi Thailam<sup>60</sup>
35. Jeemootadi Thailam<sup>60</sup>

36. Chitrakadya Thailam<sup>61</sup>
37. Laghukasisadya Thailam<sup>61</sup>
38. Pruthukasisdaya Thailam<sup>61</sup>
39. Shinsapsar Thailam<sup>61</sup>
40. Vajrak Thailam<sup>61</sup>
41. Shwetakarveeradya Thailam<sup>61</sup>
42. Marichadya Thailam<sup>61</sup>
43. Dantyadya Thailam<sup>61</sup>
44. Siddharthak Thaila<sup>61</sup>
45. Karveer Arka is beneficial for eyes, kushtha and Vrana.<sup>64</sup>

### Other uses-

Apart from use in Medicinal preparations this plant is important in Jyotish and Tantrik Vidyas (Astrological studies). Karveer is used in 'Aakarshan mantra' (For Attraction) and for 'vashikaran' (Hypnosis) purposes in Tantra vidya.<sup>65</sup>

**Anti dote** - There is Anti dote of Poisons and this Poison too has an antidote as per the Classical texts. The antidote given for it is Ghee.

### **Nerium odorum/Neerium indicum Mill.-**

#### **Taxonomy -**

Kingdom- Plantae  
Subkingdom- Viridiaeplantae  
Infrakingdom- Stretrophyta  
Superdivision- Embryophyta  
Division- Tracheophyta  
Subdivision- Spermatophytina  
Class- Magnoliopsida  
Superorder- Asternae  
Order- Genitanel  
Family- Apocyanaceae  
Genus - Nerium  
Species- Nerium oleander

### Habitat-

The plant grows wild in all parts of our country. All parts of plants are poisonous<sup>6,13</sup>, containing several cardiac glycosides, namely **neriodorin**, **neriodorein** and **Karabin**.<sup>10,11</sup> This small evergreen shrub is wild in Afghanistan and Northern India and cultivated in gardens.<sup>13</sup>

The nectar yields poisonous honey. The principle action of neriodorin is same as that of digitalis causing death from cardiac failure. Neriodorein has picrotoxin-like effect, i.e. it causes muscular twitching and titanic spasms more powerful than those of strychnine. Karabin acts on the heart like digitalis and on the spinal cord like strychnine.

### Toxicity-

*Nerium oleander* has historically been considered as a poisonous plant because some of its compounds may exhibit toxicity<sup>6,9</sup>, especially to animals, when consumed in high amounts. Among these compounds are **oleandrin** and **oleandrigenin**., known as **cardiac glycosides** which are known to have narrow therapeutic index and can be toxic when ingested.<sup>6</sup>

Toxicity studies of animals administered oleander extract concluded that rodents and birds were observed to be relatively insensitive to oleander cardiac glycosides. Other mammals however, such as dogs and humans are relatively sensitive to the effect of cardiac glycosides and the clinical manifestations of glycoside intoxication. However, very few toxic events in humans have been reported.<sup>6</sup>

In contrast to consumption of undefined oleander derived materials, **no toxicity or deaths were reported from topical administration or contact with *Nerium oleander* or specific products derived from them.**<sup>6</sup>

In reviewing oleander toxicity, lanford and Boor concluded that, except for children who might be at greater risk. **“the human mortality associated with oleander ingestion is generally very low, even in cases of moderate consumption (suicide attempts)”.**<sup>6</sup>

Toxicity studies conducted in dogs and rodents administered oleander extracts by intramuscular injection indicated that on, on an equivalent weight basis, doses of an oleander extract with glycosides 10 times those likely to be administered therapeutically to humans are still safe and without any “severe toxicity observed”.<sup>6</sup>

### Effects of Poisoning:-

Ingestion of this can affect the G.I.T., the heart, CNS. G.I.T. effects consist of nausea and vomiting, excess of salivation, abdominal pain, diarrhoea-that may or may not contain blood, and especially in horses, colic. Cardiac reactions consists of irregular heart rate, sometimes characterized by a racing heart at first that then slows to below normal further along in the reaction. Extremities may become pale and cold due to poor or irregular circulation. The effect



on the CNS may show itself in symptoms such as in drowsiness, tremors or shaking of muscles, seizures, collapse and even coma that can lead to death.<sup>6</sup>

Oleander sap can cause skin irritation, severe eye inflammation, and allergic reaction characterized by dermatitis.<sup>6</sup>

The plant is occasionally source of contact dermatitis. Emanations from flowers may cause headache, nausea, dizziness and respiratory difficulty. Ingestion causes difficulty in swallowing, abdominal pain, vomiting, profuse frothy salivation and diarrhoea. Pulse is first slow, and later rapid and weak, blood pressure fall, respirations are increased, pupils are dilated. Muscular twitching, titanic spasms, lock jaw are the other manifestations.<sup>10</sup>

### **Action-**

All parts of the plant are poisonous. Root and root bark are powerful diuretic and cardiac tonic like strophanthus and digitaline. Oleanderine, if hypodermically injected causes heart's beats to fall from 75 or 100 to 10 or 12. If continued for some time the heart ceases to beat and with it the respiration. The drug is a powerful resolvent and attenuant, but only for external use.

**Paste of Oleander roots is a poison.**

**Fatal Dose** – Fatal dose is 15-20g of root.

**Fatal Period**- Fatal period usual is 24-36 hrs.

### **Treatment-**

Poisonings and reactions to oleander plants are evident quickly, requiring immediate medical care in suspected or known poisoning of both human and animals. **Induced vomiting and gastric lavage** are protective measures to reduce absorption of toxic compounds.

**Charcoal** may also be administered to help absorb any remaining toxins. Temporary cardiac pacing will be required in many cases (usually for a few days) till toxin is excreted.<sup>6</sup>

Digoxin immune fab is the best way to cure an oleander poisoning if inducing vomiting has no or minimal success, although it is used only for life threatening conditions due to side effects.<sup>6</sup>

Drying of plant materials does not eliminate the toxins. It is also hazardous for animals such as sheep, horses, cattle and other grazing animals, with as little as 100g being enough to kill an adult horse. Plant clippings are especially dangerous to horses as they are sweet. Poisoned Horse suffers with severe diarrhoea and abnormal heartbeat.

There is wide range of toxins and secondary compounds within it, and care should be taken around this plant due to its toxic nature. This plant has different names around the world, regardless of name one should exercise full care and caution to avoid ingestion of any part of

plant, including its sap and dried leaves or twigs. The dried or fresh branches should not be used for spearing food, for preparing a cooking fire, or as a food skewer.<sup>6</sup>

### **Medicolegal aspects-**

Suicide with *Nerium odorum* is common among villagers in certain parts of India. The root is used as decoction for this purpose. The root is commonly used both locally and internally for procuring abortion.

Accidental poisoning is sometimes met with when any part of the plant is used as love philter or, when the decoction of the leaves is applied externally to reduce swellings.

Homicide with *Nerium odorum* is rare. Its use as cattle poison and has been recorded (for this purpose it is mixed with fodder or a rag smeared with the juice of the root and thrust in animal's rectum).

Smoke from burning plant carries the toxic material and may cause serious illness.

### **Uses-**

Fresh roots of white variety of this plant are intensely poisonous as are also the leaves, bark and flowers. **Bark is not used internally in any form.**<sup>76</sup>

Root is used externally, made into paste with water and applied to haemorrhoids, in cancers and ulcerations and also in leprosy. Root is used for applying or tying to the ear of the patient suffering from fevers. For this purpose, root is removed in Sunday. Paste forms a useful Lepa (Application) in scorpion stings and snake bites, especially of that known as Phursa. Powder of the root is rubbed to the head in headache. Paste of the root bark and leaves also is used externally in ringworm and other skin complaints. Decoction of leaves is applied externally to reduce swellings. Leaf-juice is given in very small doses inn snake-bites and other powerful venomous bites.

Flowers of white variety dried, mixed with equal quantity of pure tobacco powder, and a little cardamom powder, and the whole reduced to a fine powder is used like snuff in cases of snake bites. Criminal records show that the root is used to procure abortion. A medicated oil known as Karaviradya taila is recommended by Chakradatta and it is prepared as follows:- Take of sesamum oil 4 seers, decoction of the root of *Nerium odorum* 8 seers, Cow's urine 8 seers, *Plumbago rosea* root and baberang seeds, each half seer in the form of paste; boil them together and prepare an oil in the usual way. This oil is used in eczema, impetigo, and other skin diseases. Root beaten into a paste with water is recommended to be applied to chancres and ulcers on the penis by Sharangdhara.

Karveer Juice is also applied to painful syphilitic ulcers soon after they are washed. Fresh juice of the young leaves is dropped into the eyes in ophthalmia with copious lachrymation as quoted by Chakradatta.

### **Folklore-**

The alleged toxicity of plant makes it the center of the urban legend documented on several continents and more than a century. Often told as a true and local event, typically an entire family, or in other tellings a group scouts, succumbs after consuming hot dogs or other food roasted over a campfire using oleander sticks.<sup>76</sup>

**Oleander** is the official flower of the city of Hiroshima, having been the first to bloom following the atomic bombing of the city in 1945.<sup>74</sup>

### **Therapeutic efficacy-**

Drugs derived from *Nerium oleander* have been investigated as a treatment for cancer.<sup>74</sup>

### **Dosing-**

- 1) Adults- Safety has not been established for any dose of oleander. Pervoside, a heart-active substance in yellow oleander kernels (similar to digoxin) has been studied at 1.8-3.2 mg by mouth, as an initial dose, followed by an average daily dose 0.6 mg/day for Congestive Heart Failure.<sup>77,78</sup>
- 2) Children- Oleander is not recommended due to risk of toxicity or death and lack of scientific data.<sup>77,78</sup>

**Safety- Disclaimer-** Due to limited research, in some cases only limited safety information is available.

### **Allergies-**

People with allergy/hypersensitivity to oleander or any other cardiac glycosides such as digoxin may have reaction to oleander. Skin contact with sap from oleander leaves may cause rash.<sup>82</sup>

### **Side effects and Warnings-**

Common oleander contains strychnine like toxin and a heart active glycoside substance (similar to the prescription drug digoxin) that may cause heart to beat rapidly abnormally or to stop beating. **Common oleander has been used as rat poison, insecticide and fish poison and is toxic to mammals including humans.**<sup>69,72</sup>

Eating the leaves, flowers or bark of common oleander may cause nausea, vomiting, stomach cramps, pain, fatigue, drowsiness, unsteadiness, bloody diarrhoea, abnormal heart rhythm, seizures, liver or kidney damage or unconsciousness. Death may occur within one day. Reports of toxicity and deaths in children and adults have been reported for decades.<sup>73</sup>

**Additional side effects of oleander indigestion include irritation and redness of lips, gums, tongue, nausea, vomiting depression, irritability and fast breathing, sweating, stomach pain, diarrhoea, headache, confusion, visual disturbances and constricted pupils.**

**Abnormal blood tests, including tests of liver and Kidney function (Potassium, creatinine, bilirubin and blood urea) have been reported in humans.**<sup>82</sup>

It is possible that plants grown in same soil as oleander plants or in soil exposed to oleander may contain trace amounts of oleander.<sup>76</sup>

### **Interactions-**

It has been recorded to have Same action as digoxin therefore, it should not be used with digoxin or other antiarrhythmics.<sup>84</sup>

The Low Pottassium levels in blood may increase the dangerous side effects of oleander. Therefore, it should be cautiously used with laxatives and diuretics.<sup>73</sup>

A broad range of skin conditions especially of scalp, respond to oleander.

### **Studies-**

Various studies have been done on Nerium indicum which have shown its various uses.

#### **Cardio-vascular Activity-**

The alcoholic extract of Nerium indicum was studied on Frog and rabbit hearts and B.P. and E.C.G of Dogs. It produced ECG changes resembling that of Cardiac Glycosides in the Dog heart . The Alcoholic extract produced positive onotropic effect in isolated frog and rabbit heart. In reversed experimentally- induced heart failure in the isolated rabbit heart . A potent cardiotoxic activity and Synergism with calcium indicates the presence of a potent cardiac stimulant substance in the extract. ( Singh , et al 1970).

#### **Anti Cancerous and Anti Tumourous activity-**

The Extract of Nerium posses anti – tumour activity against Mammary Carcinoma.(Taylor et al 1956). The water extract of the stem and leaves of the plant has been found to have significant cytotoxicity against KB cells in Tissue Culture.( Dijkaman et al 1966).

The aqueous extract of the fresh leaves showed moderate anti- cancer activity against Ehrlich ascetic carcinoma in mice.(Pal et al 1963,loc cit., Chakraberty and Mukerji , 1968).

## **Discussion and Conclusion-**

Being a poisonous plant Kaner is being used widely in Ayurveda since ages. There are many formulations in which it is used for local and internal use. This plant although it is poisonous but could be of varied uses if investigated and researched . Ayurvedic concepts are very clear regarding it and are fit as per the modern concepts. In Ayurveda its Purification too has been mentioned before use which makes it either less toxic or non toxic. Modern researches shows it to be a promising drug for future for use in Cardiac and Cancer diseases. Its action is found to resemble Digoxin. Ayurvedic uses of the formulations containing Nerium ranges from Eyes diseases to Skin and Veneral diseases. As per the concepts of Ayurveda Good Medicine/Herb is the one which is present in Quite a good amount and in max. places with ease. Karveer is highly poisonous but is available with ease in the country. If karveer could turn out with a promising medicine for Cancer it could be beneficial for the Man kind. Karveer a Poisonous Plant is appreciable for its Fast action and use But still requires and hopes for studies in Future.

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*Section: Research Paper*

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