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AYURVEDIC ASPECTS OF GUNJA IN AGADTANTRA

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ABSTRACT:

Gunja (*Abrus precatorius*) also known as Lucky bean, crab's eye, Buddhist rosary bead family belong to Fabaceae. In Ayurveda it is described as *vanaspaty visha* as in modern science it is irritant organic vegetable poison. All parts are poisonous mostly seeds, root and leaves are hazardous to human. Its medicinal *kalpa* are prepared it contain Abrin, Abric acid, Glycyrrhizin. It also used as non-medico purpose as seeds used in necklaces rosary beads, detoxified in milk cows. While *Gunja* used as medicinal purpose used as a weighing measures for gold or jewellery *qunja* detoxi precious stones. This article suggests the ayurvedic reviews of *Gunja* in *Agadtantra*.

Keywords: *Gunja*, *Agadtantra*, *Abrus precatorius*

INTRODUCTION:

Gunja (*Abrus precatorius*) is a woody twinning plant with characteristic toxic red seeds with black mark at the base. Leaves resemble tamarind leaves having 20-40 leaflets. It is native to India, at altitudes up to 1200 m on the outer Himalayas but now found in all tropical countries. It is a beautiful, much-branched, slender, perennial, deciduous, woody, prickly twining or climbing herb. Stem cylindrical, wrinkled, bark smooth-textured, brown. Leaves stipulate, pinnately compound; leaflets 7-24 pairs, 0.6-2.5 cm × 0.4-1.2 cm, turgid, oblong, obtuse, truncate at both ends, appressed hairy. Flowers in auxiliary racemes, shorter than leaves, pink or pinkishwhite. Pods 1.5-5.0 cm × 0.8-1.5 cm, turgid, oblong, appressed hairy, with a sharp deflexed beak, silky textured, 3 to 5 seeded.

- **Latin name:** *Abrus Precatorious*.
- **Family** – Fabaceae

AIM:

To review *ayurvedic* aspects of *Gunja* with special reference to *Agadtantra*.

OBJECTIVES:

- I. To review *ayurvedic* aspects of *gunja*.
- II. To classify *gunja* according to the norms.
- III. To identify properties, uses and medico legal aspects of *gunja*.

SYNONYMS – ¹

1. **Sanskrit name** - *Raktika, kakananti*
2. **Marathi** - *Gunja* Hindi - *Rattis*
3. **English** - Rosary pea, Lucky bean ratty, qunchi, Indian liquorices' crabl's eye, love bean
4. **Botanical Name** - *Abrus precatorius*
5. **Kul** - Shimbhi kul
6. **Bengali** - Kunch
7. **Gujarathi** - Chanothi

- **Varjikaran** - *Sthavar visha - Vanspatij visha*
- **Modern** – irritant organic, vegetable poison
- **Patra** - 20-40 Number 3-7 inch length, (Imali)
- **Pushpa** - 1-3 inch length pink, blue in colour
- **Pala** (Fruit - red, blue, white colour)
- **Utpatti Sthan** - All over India

Rasayanik Sanghatan – Abrin, Glycyrrhizin and N-methyl tryptophan

AYURVEDIC PROPERTIES²

- **Guna** - *Laghu, tikshna, Ruksha*
- **Rasa** - *Tikta, kashay Vipak - Katu*
- **Virya** - *Ushna*
- **Doshkarma** - *Kaphavatshamak - seeds*
- **Patra** - *Vatapitta Shamak*



Fig. no. 1 (*Gunja* seeds)



Fig. no. 2 (*Gunja* plant)

MEDICINAL PARTS

The dosage of detoxified rosary pea (*Abrus precatorius*) varies according to medicinal parts. Detoxified Rosary pea powder – 30-125 mg

- Rosary leaf Powder – 500 to 2000 mg
- Rosary root powder – 500 to 2000 mg
- The maximum dosage of Rosary pea (*Gunja* seeds) Powder should not exceed 250 mg per day. Rosary leaves and root powder dosage should not exceed 4 g per day.

MAIN COMPONENTS³

- Haemagglutinin
- Abrin
- Glycyrrhizin

TOXICO KINETICS

Due to its cytotoxic and neurotoxic action presents with various clinical presentation even with conjunctival exposure, due to its high dispersibility and absorptive rate. In addition, it also causes hemagglutination and fat depletion, due to fat splitting. Subcutaneous injection proves fatal with in very short duration.

SYSTEM KARMA

1. **Pachan sansthan** - *Snehan, Dipan*(Digestive)
2. **Swasan sansthan** - *Snehan, Kaphanisaraka*
3. **Mutravah sansthan** - *Use in Mutrakruchrira, mutral*
4. **Prajanan sansthan** - *Uterian excitement, Vajikaran, Reproductive*
5. **Tapakram** (Fever) – *Jwaraghna*
6. **Twaka - Kushtaghna**
7. **Nadisansthan** – *Balya*

THERAPUTIC USE

- *Mukhoshohahar, Vatapitta shamak, Shwasa, Trushna Madha Vinashan Shothahar Graha visha, kandu, Kusthna, krumi nashan*

- **Aushadhi Matra** – *beeja chrana* - 60 - 180 mg,
- **Mula and patra churna** - 1-3g
- **Vishakta lakshana:** *Permatitis, Tash, redness*
- **Vishakta Chikitsa:** *Tandulja swaras + sharkara Cow milk + sharkara*

FATAL DOSE

60 to 120mg of abrin or 1 to 2 crushed seeds.

FATAL PERIOD

3 to 5 days.

TOXICITY RATING

5 to 6 (super toxic)

MAIN RISK AND TARGET ORGANS

The main risks include severe gastroenteritis leading to dehydration and shock. Ingested seeds can affect GIT, liver, spleen, kidneys & lymphatic system. Infusion of seed extracts can cause eye damage after contact.

TOXIC SYMPTOMS

Early features of toxicity include

1. Burning of the mouth andoesophagus
2. Severe gastroenteritis with vomiting
3. Haemetemesis, diarrhea
4. Malena
5. Abdominal pain
6. Drowsiness
7. Disorientation, weakness
8. Stupor
9. Convulsions
10. Cyanosis
11. Shock.

Later, oliguria can occur. Contact with the eyes can cause conjunctivitis and even blindness.

DIAGNOSIS

Diagnosis is made by the presence of typical manifestations following ingestion like gastro enteritis with risk of dehydration, hemetemesis and malena. Drowsiness and convulsions may occur. Toxicological analysis of body fluids for the poison is not helpful. Plant material,

seeds or remnants of seeds, vomitus & gastric aspirate should be collected in clean bottles for identification.

POSTMORTEM APPEARANCE⁴

1. Fragments of Seeds in wound.
2. Edema at the site of injection
3. Patches of ecchymosis under the skin, pleura, peri-cardium and peritoneum hemorrhagic patches on external and internal surface of body.

MEDICOLEGAL ASPECT⁵

1. Sui poisoning Seeds are powdered mixed with Dhatura, opium and made into paste with spirit and water and applied into needles.
2. Sui poisoning is a cattle poisoning.
3. Accidental poisoning is seen into children because of its attractive colour.
4. Used as arrow poison.
5. It also used for homicide.

Commonly used as cattle poison. For this purpose, the seeds are crushed with opium, dhatura, onion and water, ground to a paste and rolled to form needles around 15mm, dried in the sunlight till it becomes hard. 2-3 of these needles are kept in a hollow bamboo and blown to the buttocks of the animal. The animal becomes drowsy, unable to move, goes into coma, followed by convulsions and death. These needles are also used criminally and for homicide as well. Also use as arrow poison. Due to its alluring nature, accidental poisoning is common in children. The seeds were used as birth control pills in the past. When taken internally, it disturbs the uterine function and prevents conception. Seeds are used as an abortifacient as well.

DETOXIFICATION OF SEEDS⁶

Raw seeds are not suitable for medicinal uses, as discussed above. The coarse powder of Rosary peas is taken in cotton

pouch and boiled in the cow's milk for 3 to 6 hours.

The second method includes boiling the seeds in Kanji water (Brown rice water) for 3 to 6 hours. Milk or Kanji used for detoxification should be discarded.

Boiling rosary peas in cow's milk or Kanji water reduces the toxic effects and make it usable for the medicinal purposes. Toxalbumins present in the rosary peas break down after heat treatment and dissolve into the milk or Kanji water. Therefore, the process reduces toxic substances in rosary pea significantly.

The study also confirms the usability and effectiveness of ayurvedic detoxification process and found the absence of abrin in detoxified rosary seed extract whereas non-detoxified extract contains abrin.

Properties of purified seeds:

The *Gunja* seeds are bitter, pungent and astringent in taste, pungent in the post digestive effect and have hot potency. It possesses light, dry and sharp attributes. It alleviates *kapha* and *vata doshas*.

PHARMACOLOGICAL USES⁷

1. Neuromuscular Effects:

Some neuromuscular effects of the crude extracts of the leaves of *Abrus precatorius* were investigated using isolated toad rectus abdominals and rat phrenic nerve-diaphragm muscle preparations as well as young chicks

2. Dalton's Lymphoma:

It has been reported that *abrus abrin*, isolated from the seeds of *Abrus precatorius*, showed in vitro and in vivo antitumor properties by the induction of apoptosis.

3. Alzheimer's Disease:

Abrus precatorius L. lectin have been used to identify glycohistochemically the microglial cells (MGC) activation in autoptic brain samples from Alzheimer's disease subject. *Abrus precatorius*

agglutinin recognizes MGC in the cerebral white matter from all AD patients studied.

4. Antimalarial:

avaquinone- abruquinone was isolated from the An iso extract of aerial parts and exhibited antimalarial activity.

5. Internal Use

of Rosary Seeds included in Hemiplegia, Paralysis, Sciatica, Muscle spasm, Low backache, Rheumatoid arthritis, Arthritis, Bursitis, Fibromyalgia, Erectile dysfunction, Premature ejaculation.

TREATMENT

General measures include Gastric Lavage with plain water or potassium permanganate or the use of activated charcoal.¹⁸ In case of oral poisoning, acid hydrochloric pepsin mixture and 10 percent sodium bicarbonate can be given as IV. In case of locally injected poisoning, the suis (needles) are to be dissected out.

Antidote:

Anti abrin injection is said to be the antidote for the poisoning.

Household Remedy:

Juice of *Amaranthus spinosus* with sugar candy can be given. The juice of *chavali* (*Rajmasha*) is given with sugar.

First Aid:

As a first aid, remove all seed particles from the mouth, the induce vomiting and save it for identification. Make sure that the patient's airway is clear & there is adequate ventilation. If eyes are contaminated, wash the eyes thoroughly with running water for 10mins.

CONCLUSION:

Abrus precatorius is very potent herbal plant used as various purposes. It has different synonym according various archarya's. According to its action it gives various effects. As per modern science it is organic irritant vegetable poison. But according to Acharaya Priyawat shrama it

is *vishgna* activity. Sometimes made into pills and sold as birth control pills.

One among the *upavishas*, *gunja* is a toxic plant. Due to its attractive seeds, it is always a source of accidental poisoning among children. Hence it is necessary to know its toxic effects and treatment aspects to avoid or treat poisoning cases due to *gunja* seeds.

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