

# Ayurvedic Aspect of Gunja in Agadtantra

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**Abstract** –Visha means Poison are classified into three types viz. sthavara, jangham and kritrima. Sthavara visha are those which belong to group of poisonous plants, herbs, metals and minerals. Gunja is a plant poison that has mentioned in Ayurveda under the sthavara vanaspathic visha. According to modern it is an irritant organic vegetable poison belonging to family Leguminosae. The botanical name of Gunja is Abrus precatorius Linn. All parts of the plant are toxic, but most toxic part is seed, which contain active principle abrin. While eating whole seeds no toxicity visible in body but when crushed seeds are chewed or swallowed toxic symptoms appears. After proper purification Gunja is used as an ingredient in many Ayurvedic formulations and apply in various diseases like shotha (oedema), kandu (itching), indralupta (alopecia), granthi (tumour), kustha (leprosy) etc. Roots, seeds and leaves are used in traditional folklore medicine. There are many pharmacological properties and activities shown by this plant. Beside the toxic impact of Gunja, it is well known drug with therapeutic uses in Indian system of medicine. The present review article of Gunja highlights its synonyms, vernacular name, properties, toxicity, management, therapeutic uses, autopsy features and medicolegal importance.

**Keywords:** Ayurveda, Toxicology, Gunja, ayurvedic properties,

## INTRODUCTION

Agadtantra is the branch of Ayurveda which is meant for diagnosis and treatment of various poisoning such as bites by snakes, insect, spider, rats, etc. and also other poisonous substances like plants and minerals. Visha means artificial poisons which are made from poisonous or nonpoisonous compounds [1]. Gunja is a plant poison that has mentioned in Ayurveda under the sthavara vanaspathic visha [2]. According to modern it is an irritant organic vegetable poison belonging to family Leguminosae. The botanical name of Gunja is Abrus precatorius Linn., which is derived from two greek word, Abrus means graceful and precatorius means to pray. It is also known as crab eye, Indian jequirity, Indian liquorice, ratti, weather plant, love bean, lucky bean, Buddhist rosary bead, Seminole bead [3]. It is a bushy,

slender, climbing plant found all over India. All parts of the plant are toxic but most toxic part is seed. By eating whole seeds no toxic system is visible in body but crushed seeds are chewed or swallowed toxic symptom visible [4]. Gunja is used in making many Ayurvedic formulations after proper purification and apply in various diseases like shotha (oedema), kandu(itching), indralupta (alopecia), granthi (tumour), kustha (leprosy) etc. [5]. In olden times Indians used the seed of Gunja to measure gold and silver and measuring was called as ratti [6].

**AIM-** To Study the Ayurvedic Aspect of Gunja In Agadtantra.

## OBJECTIVES

- 1.To study the toxicity of Gunja.
- 2.To study the systematic effect of Gunja.

## MATERIALS AND METHODOLOGY

Information is collected from different Ayurvedic medical textbooks, magazine, journal, internet etc.

### Vernacular Name

▪ English - Jequirity ▪ Hindi - Ratti, Ghungechi ▪ Sanskrit - Raktik, Kakananti ▪ Bengali - Kunch, Shonkainch ▪ Tamil - Kuntri, Kunrimani, Kundamani, Gundumani ▪ Telugu - Guriginja, Gurivinda ▪ Urdu - Ghongcha, Ratti ▪ Kashmiri - Shangir ▪ Gujrati – Gumchi, Chanothi ▪ Punjabi – Mulati ▪ Kannada – Gurugunji

### Plant Description –



It has slender, tough branches with 5 to 10cm long compound leaves bearing 10-20 pairs of leaflet. Leaves are alternate, opposite, pinnately divided with small oblong leaflets. Its leaves look like Tamarid or Aamla leaves and sweet in taste. Stem are green when young, but develop grey bark as the plant matures. Flowers are pink, white or purple and borne in clusters <sup>[8]</sup>. Seeds are oval, tasteless, odourless and bright red in colour or sometimes white or black colour with a black spot on one end, about 5mm in diameter has an attractive hard glossay outer shape. Root is curved with many branches and its property is similar to the property of Mulethi (*Glycyrrhiza glabra*) <sup>[9]</sup>.

#### Synonyms of GUNJA

Raktagunja, Saumya, Sikhandi, Aruna, Tamrika, Raktika, Kakantika, Kakvallari.

#### Types of Gunja –

There are two types-

Rakta Gunja (red variety) and Sweta Gunja (white variety). Rakta Gunja is also known as sikhandika, tamra, raktika, kakanasika and sweta Gunja is known as chakrika, durmukha, swetakamboji <sup>[10]</sup>. Both varieties are hair tonic, antipyretic and reduce aggravated vata and pitta dosha. They also control dryness of mouth, dyspnoea, vertigo, thirst, eye diseases and aphrodisiacs<sup>[11]</sup>

#### Characteristic of Gunja fruit–<sup>[12]</sup>

1. Guna (Qualities) -Laghu, Ruksha
2. Rasa (Taste) - – Tikta, Kasaya
3. Vipaka-Katu
4. Veerya (Potency) -Ushna
5. Karma (Action)- Vrisya, Balya, Chakshusya, Shothahara
6. Doshaghnata - - Kaphavatashamaka
7. Rogaghna- Krimi, Indralupta, Kandu, Kustha.

#### Toxic Part-<sup>[13]</sup>

##### Seed

#### Therapeutic dose <sup>[14]</sup>

Seed powdered- 60-100 mg ,Root/ Leaf powder -1-3 gm Fatal dose <sup>[15]</sup> 90 -120mg or 1-2 crushed seed

Fatal period <sup>[16]</sup>: 3 to 5 days

#### Chemical constituents-<sup>[17]</sup>

Root and leaves contain Precol, Abrol, Abrasine, Acidmethyl-ester, Procasine, Precol, Abraline,

Abrussic acid, Anthocyanine, Glycyrrhizin. Seeds contain Abrine, Precatorine, Abridin, Hypaphorine, Trigonelline, Tryptophan, Aglucoside, Abrussic acid, Haemagglutinn, Gallic acid, alanine, serine, Valine.

Substitutes and adulterants -Root and Leaves contain glycyrrhizin. Root has been used as a substitute.<sup>[18]</sup>.

#### Mode of action <sup>[19, 20]</sup>

Abrus seeds are harmless when ingested whole, since the hard outer shell resists digestion. But chewing or crushing of the seed release abrin. The “B” polypeptide chain binds to the intestinal cell membrane while “A” polypeptide chain enters the cytoplasm. In cytoplasm “A” act on 60S ribosomal subunit and prevents binding of elongation factor EF-2 thus inhibiting protein synthesis, thereby causing cell death.

#### Clinical manifestation of Gunja <sup>[21, 22, 23, 24]</sup>

The seeds contain an active principle abrin. Abrin is toxalbumin and its actions resemble those of viperine snake bite.

- ❖ If oral ingestion- causes pain in abdomen, diarrhea, bleeding per rectum, convulsion, CNS depression, vomiting, cardiac arrhythmias, cerebral oedema, elevations of liver enzyme.
- ❖ Ocular exposure- causes redness, chemosis, swelling and conjunctivitis.
- ❖ Dermal manifestations- redness, rashes.
- ❖ When an extract of seed is injected under the skin there is local inflammation, oozing of haemorrhagic fluid from the site of puncture, necrosis and septicemia.

#### Management of toxicity-

Gunja is a highly toxic plant. The majority of toxicity mostly found in children who ingests seeds from plant or broken pieces of ornament. The toxicity of Gunja is managed by swarasa of chowlayi with sugar or cow's milk <sup>[25]</sup>. In contemporary science gastric lavage with charcoal, give anti abrin injection along with symptomatic management. Injection diazepam gives for convulsion and inj. of sodium carbonate to maintain alkalinity of urine <sup>[26]</sup>

#### Therapeutic uses of Gunja <sup>[27, 28]</sup>

- ❖ Hoarseness and stomatitis: The fresh leaves are chewed with cubeb and sugar to relieve

hoarseness of voice as in sore throat and stomatitis.

- ❖ Leukoderma: The paste of the leaves with chitraka mula is applied in skin diseases in leucoderma and also recommended as a cure for baldness over the scalp.
- ❖ Eczema and scabies: The paste of Gunja seed mixed with bhrungraj leave juice in eczema and scabies region.
- ❖ Criminal abortion: The paste of Gunja seeds converted into needle are inserted into vagina to procure abortion.
- ❖ Sciatica and Paraplegia: The paste of seed is used in sciatica, paraplegia and stiff shoulders.
- ❖ Spermatorrhea with bloody discharge: The white Abrus leaves and heena leaves triturated with the powder of the root with cumin seeds and sugar are given internally
- ❖ Fresh leaf extract along with boiled water is given orally to retain placenta.

#### Formulations-

1. Sarivadi vati <sup>[29]</sup>
2. Panchanan ghrut <sup>[30]</sup>
3. Snuhiadya tailam <sup>[31]</sup>
4. Gunjadya tailam <sup>[32]</sup>
5. Gunjanavneet yoga <sup>[33]</sup>
6. Bhallatakadi lepa <sup>[34]</sup>
7. Purnachandra rasa <sup>[35]</sup>
8. Laxmivilas rasa <sup>[36]</sup>

#### CONCLUSION

Gunja is an irritant organic vegetable poison which is mentioned in Ayurveda under the sthavara vanaspathic visha. All parts of the plant are toxic but most toxic part is seed. Gunja seed looks very attractive. Due to its attractive seeds it causes an accidental poison. After proper purification it is used as an ingredient to make many Ayurvedic preparations and apply in various diseases such as shotha, kandu, kustha, krimi etc., both externally as well as internally. Root, seed and leave are used in traditional folklore medicine. There are many pharmacological properties and activities shown by this plant. It is essential to take cognizance of the fact that misuse or overuse of plants can cause danger. Discussion Human and Animals depends for their food on plants and vegetables. Some plants are toxic for human and animals and causing serious harmful effects or even death. Gunja is well known toxic plant which is commonly found in many parts of India. Its two varieties are found viz. Rakta Gunja (red variety) and

Sweta Gunja (white variety). Both are used for medicinal purpose. Gunja also poses forensic importance. The seeds are used for cattle poisoning, for homicidal purpose and as an abortifacient. Parts of this plant like seed, root, leaves are used in many medicinal formulations like Gunja bhadra rasa, Gunja taila, rajamrighanka rasa etc. Beside the toxic impact this plant it is well known drug with therapeutic uses in Indian system of medicine.

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