

A Review Article on One Specific Semipoisonous Herb: Gunja

Sanika Gondkar^{1*}, Mohini Sayambar^{2*}, Sohel Shaikh^{3*}, Ms. SnehalLad^{4*}, Ms. Poonam Ghorpade^{5*}

1,2,3 Students, Shri Amolak Jain Vidya Prasarak Mandal College Of Pharmaceutical Science And Research Center, KadaTal:- Ashti Dist:- Beed.

4,5 Assistant Professor Shri Amolak Jain Vidya Prasarak Mandal College Of Pharmaceutical Science And Research Center, KadaTal:- Ashti Dist:- Beed.

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ABSTRACT:

Visha Dravya Gunja is mentioned in Samhita and other Ayurvedic texts. In Samhita it is mentioned under Sthavara Visha and in the texts of Rassashastra it classified is under Upavishas. The history of poisons and poisoning dates back several thousand years. Abrus precatorius is a severely invasive plant in warm temperate to tropical regions, so much so that it has become effectively pantropical in distribution. It has been estimated that some form of poison directly or indirectly is responsible for more than 1 million illnesses worldwide annually. Most cases of poisoning actually go unreported, especially in Third world countries. The incidence of poisoning in India is highest in the world. The causes of poisoning in India are highest in the world. The commonest agents in India appear to be plant toxins, pesticides, chemical and household poisons.

Review article, an attempt has been made to compile critically its information related to therapeutic uses of Gunja from samhitas, nine samgrahagranthas, seven nighantus and other published texts. It is observed that seed, root, fruit & leaves of Gunja are used as an ingredient in 109 formulations which are effective in more than 30 disease conditions. The main indications include Netra roga Medicinal plants are being widely used, either as a single drug or in combination in health care delivery system. It characterized under the Upavisha (semi-poisonous drugs) and used extensively in various Ayurvedic formulations with great therapeutic significance.

KEYWORDS: Ayurveda, Gunja, Abrus precatorius Linn., therapeutic importance, toxic plant, plant toxin, shodhana.

I. INTRODUCTION:

Gunja scientifically known as Abrus precatorius is a plant species native to tropical regions of Asia, Africa, And the Americas. It is small, per-

ennial vine that is also commonly referred to as the rosary pea, that crab's eye, or jequirity bean. Gunja has a long history of both medicinal and cultural uses although it is important to note that the seeds of this plant can be highly toxic if ingested. Gunja, one of the poisonous plants reported in ancient scriptures of Ayurveda, comes under Upavisha category. Gunja is used in treating various diseases such as Indralupta (alopecia), Shotha (edema), Krimi (helminthes), Kustha (skin diseases), Kandu (itching), Prameha (urinary disorders), etc., after being passed through specific Shodhan. The seeds are often used criminally for killing cattle and it is reported that boiling renders the seed harmless.

The Gunja tree (Abrus precatorius) contains toxic compounds and it is not typically used in modern medicines due to its potential risks. However, some traditional and folk medicines practices have utilized certain parts of the plant for various purposes. Its important note that using the gunja tree for medicinal purposes can be dangerous and is generally discouraged. Always consult a qualified health care professional for safe and reliable medical advice.

It is cited in the classics that Visha (poison) becomes Amrita (nectar) after logical administration and the ancient physicians of Ayurveda successfully used this drug in a number of diseases after proper purification in some specific media. Gunja seeds contain various number of alkaloids, steroids, flavones, triterpenoides, proteins, amino acids, etc., among which albumotoxin and abrin are considered as the main responsible constituents for its poisonous effect. with an estimated human fatal dose of 0.1-1 µg/k. Gunja has been reported for its antitumor, anticancer, antispermato-genic, antifertility, CNS depressant and analgesic activity in rat, in treatment of ulcer and skin affections, antidiarrheal and antihelminthic activities.

Abrus precatorius



Scientific classification

Kingdom:Plantae
Clade: Tracheophytes
Clade:Angiosperms
Clade: Eudicots
Clade:Rosids
Order: Fabales
Family: Fabaceae
Subfamily: Faboideae
Genus:Abrus
Species:Precatorius

Biological source of Gunja:

Gunja belongs to fabaceae or Leguminosae family, which is also known as the bean or pea family. it is classified under the genus Abrus and the species precatorius. This plant species is characterized by slender, twining stems, compound leaves with numerous leaflets, and clusters of pea-

like flowers that can be white, pink or purple. The seeds of Gunja are its most distinct feature, with their vibrant red or black colours.

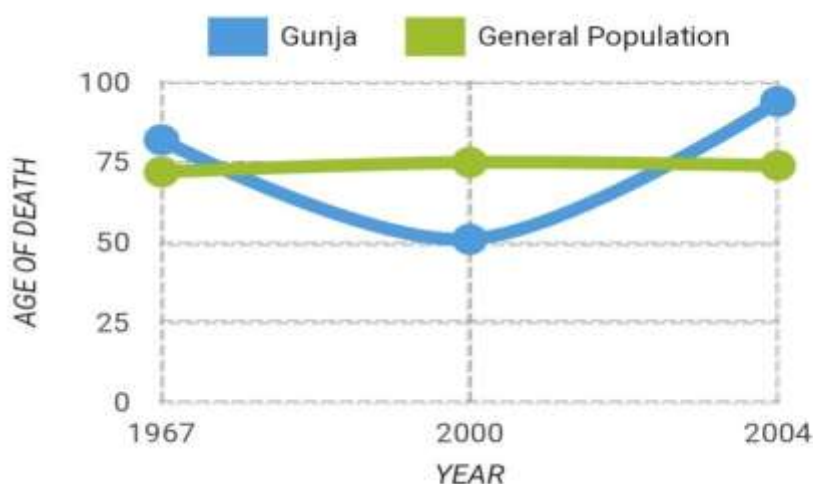
Geographical source of Gunja:

Gunja is a native to tropical regions and can be found in various countries across Asia, Africa, and the Americas. In Asia, it is found in countries such as India, Bangladesh, Sri Lanka, Indonesia, and Thailand. In Africa, Gunja is present Nigeria, Kenya, Uganda and Tanzania, among others. In the America, it can be found in countries like Brazil, Mexico, and the Caribbean islands. Gunja is also cultivated as an ornamental plant in many other parts of the world due to its attractive foliage and seeds.

It is important to note that gunja is considered an invasive species in some regions, as it can spread rapidly and crowd out native plants. The plant thrives in various types of soil and climates, making it adaptable to different environments. However, its invasive nature, coupled with the toxicity of its seeds, should be taken into consideration when cultivating or dealing with gunja.

The Life Span Of Gunja:

Between 1967 and 2004, in the United States, Gunja life expectancy was at its lowest point in 2000, and highest in 2004. The average life expectancy for Gunja in 1967 was 82, and 94 in 2004.



An unusually short lifespan might indicate that your Gunja ancestors lived in harsh conditions. A short lifespan might also indicate health problems that were once prevalent in your family. The

SSDI is a searchable database of more than 70 million names. You can find birthdates, death dates, addresses and more.

Information About Gunja as a medicinal plant:

- I. **Basonym of Drug:-**Gunja
- II. **Main Synonym:-**Kakanatika, raktika, uch-hata, sweta, kakchinchhi, raktika, kakadani, kakapilu, kakvallari
- III. **Regional Name:-**
 - i. Gujarati:chanothi
 - ii. Hindi:gamanchi
 - iii. Tamil: gudumani
 - iv. Telugu: guruvinda
 - v. English:abrus, indianlicorice root, rosary pea
 - vi. Malayalam: kunni
- IV. **BotanicalName:-**Abrus precatorius
- V. **Family:-**Fabaceae
- VI. **Classification :-**Aacharya Sushruta : moola visha
Bhavprakashnighantu :guduchyadivarga
- VII. **External Morphology**Perennial climber
- VIII. **Useful Parts**Root, leaf, seeds
- IX. **Important Phytoconstituent**Precool, abrol, precasine, abrasine, trigonelline, abridine
- X. **Rasa Panchak**

Rasa: Kashaya, tikta

Guna: laghu, ruksha

Virya: ushna

Vipaka: katu

- XI. **Action**Kaphavatahara
- XII. **Therapeutic Indication**Krimihara (anti-helminthic), kanduhara(useful in itching), keshya (good for hairs), kusthaghna(useful in skin disorders)
- XIII. **Therapeutic Uses**
 - I. Visarpa - leaf paste is useful to treat external inflammations and cellulitis in systemic lupus erythematous.
 - II. mukhpaka - leaves paste is applied in mouth ulcers, it heals quickly.
 - III. Darunaka - oil of gunja seeds and bhringaraja is beneficial in dandruff.

XIV. **Dose**Seed powder - 60-150mg, root and leaf powder - 1-3 gm

XV. **Formulations**Gunjadhyatailam, gunjabhadra rasa

XVI. **Adverse Effect**High internal intake of seeds is causes stomach disturbance, dizziness, vomiting, diarrhea, and convulsions.

XVII. **Remedial Measure**Gastric lavage, and symptomatic treatment

Pharmacological activities of Abrus precatorius:

Incredible research work, in vivo and in vitro has been conducted on various extracts of seeds of A. precatorius and it show remarkable pharmacological activities. Research on aqueous extract of seed powder of Gunja showed spermicidal activity in male albino rats and the petroleum ether extract of seed oil of Gunja possess excellent anti-lice activity. Petroleum ether extract from aerial parts of Abrus precatorius at different concentration showed neuroprotective effect when given orally in rats. The plant part extracts also produced anti-diabetic, anti-viral neuromuscular, anti-epileptic anti-convulsant, antihelminthic, diuretic anti-microbial, anti-inflammatory, anti-arthritic and analgesic, anti-cancer, anti-fertility, anti-spermatogenic, anti-malarial, wound healing activity, anti-asthmatics, anti-cataract, Antidiarrheal anti-spasmodic cytotoxicity and antitumor activity in various concentration.

Pharmacological Actions

Gunja has been attributed different pharmacological action such as Kushtaghna, Kaphanisarka, Balya, Vathara, Viryavardhaka, Kapha-Pitta nashaka, Jwaranghna, Garbhnirodhaka, Krimighna, Keshya, Mutral, Hridayottejaka, Kamodeepaka, On the basis of these pharmacological actions it is used to cure various diseases.

External Morphology

Gunja is a beautiful, much branched, slender, perennial, deciduous, woody twinning, climbing herb with characteristic toxic seeds with black mark at the base. Stem – cylindrical, wrinkled, bark smooth textured, brown in colour. Leaves – resemble tamarind leaves having 20- 40 leaflets, stipulate, pinnately compound, up to 10 cm long. Leaflets – 7-24 pairs, turgid, oblong, obtuse, appressed hairy, truncate at both ends. Flowers – in

auxiliary racemes, shorter than leaves, pink or pinkish – white, flowering season is july-september. Seeds – ovoid, globular, 7 mm in length, 5mm in diameter, hard, smooth and shining of two distinct colours. The outer hard shell – like and enclosing a light yellowish brown embryo.

Phytochemistry

The seed contain the protein toxin, abrin which is deadly when ingested even at a small dose. It was reported that as little as 0.00015% of toxin per body can cause fatality in humans. The leaves were found to contain sweet tasting compounds such as abrusoside and glycyrrhizin, which are sweeter than sucrose and have lower caloric value. Abrusoside A- D, which contains abrusogenin as aglycone, exhibited sweetness potencies 30-100 times greater than sucrose. A number of triterpenes were isolated from *A. precatorius*, abrusoside A-E and abrusogenin. The seeds yielded a mixture of stigmasterol and β – sitosterol in a 4:1 ratio, while the peduncle afforded triglyceride.

Cultural and symbolic significance:

Gunja seeds have been used for centuries as decorative elements and personal adornments in various cultures. The vibrant red and black colours of the seeds make them visually appealing, and they are often used in the creation of jewellery, particularly in rosaries and necklaces. In some cultures, gunja seeds are protective and spiritual significance, and are used in ceremonies and rituals for good luck, warding off evil spirits, and as symbol for fertility.

Medicinal uses of Gunja:

A-Internal use of rosary seeds:

- I. Hemiplegia
- II. Paralysis
- III. Arthritis
- IV. Bursitis
- V. Muscle spasm
- VI. Sciatica
- VII. Fibromyalgia
- VIII. Premature ejaculation
- IX. Erectile dysfunction

B-External use of rosary seeds:

- I. Alopecia or hair loss
- II. Acne vulgaris
- III. Eczema
- IV. Psoriasis

C-Primary medicinal uses of Gunja:

1- Skin related problems: *Abrus precatorius* is very effective in treating leucoderma. If you are infected with acne sores or boils, the leaves of the herb serve as a great medicine. It also helps getting you rid of itching and other skin related problems.

2-Scratches from pet animals:

If you are hurt by pet animals leading to scratches or wounds, apply a paste of the herb over the affected area.

3-Abdominal Pain:

Prepare a paste of the roots and apply it over the abdomen. The herb cures the wounds rapidly.

4-Hair Growth:

The oil extracted from the leaves of *Gunjamani* has great medicinal properties in stimulating the growth of hairs.

5-Intestinal worms

Take the seeds of the plant. Dry them and powder them. Take the powder once for 2 days. Worms get killed.

6-Cough

Powder the roots of the herb and mix it with butter. Consume it three times a day. Cough gets cured. A tea is made from the leaves of the plant and consumed which is a good medicine for curing cold, cough and fever.

Therapeutical uses of Gunja seeds:

Gunja is a medicinal plant known as *Abrus precatorius* Linn. Its roots, seeds, and leaves have been used traditionally for their purgative, emetic, tonic, aphrodisiac, and hair growth promoting properties. The plant has been used to manage minor cough and cold like problems to rheumatoid arthritis, skin disorders, worm infestations, dizziness, asthma, and excessive thirst and poisoning.

Some of the other benefits of *Gunja* include managing diabetes, anti-malarial effects, antimicrobial effects, effective against migraine headache, managing arthritis, preventing and treating hair loss, and anticancer effects.

A critical review on pharmacological uses of *Gunja* (*Abrus precatorius*) has been published in the Journal of Indian System of Medicine. The review highlights the therapeutic effects of *Gunja* such as anti-inflammatory, antibacterial, antispas-

modic, antifungal, antitumor, antidiabetic, and antimigraine properties .

Please note that while Gunja has been traditionally used for its medicinal properties, it is important to consult a healthcare professional before using it for any medical purposes.

Traditional uses of Gunja:

Leaves:

Leaves are used as aphrodisiac, tonic, removes biliousness, useful in eye diseases, cures leucoderma, itching, skin diseases and wounds. In addition they also cure fevers, stomatitis, head complaints, asthma, thirst, tuberculous glands and caries of teeth. When leaves are steeped in warm mustard oil and applied over the seat of pain in rheumatism much benefit will be derived. The juice of the fresh leaves, mixed with some blend oil, applied externally, seems to relieve local pain. Powdered leaves mix with sugar given in case of leucoderma and menorrhagia. The leaves also used as diuretic, diarrhoea, gastritis, heart diseases, kidney diseases, insomnia, Cancer and CNS sedative.

Root:

The root is considered emetic and alexiteric. The watery extract is useful in relieving obstinate coughs. The roots employed as a substitute for liquorice. Roots are taken for sore throat and rheumatism. The root also used as diuretic, diarrhoea, gastritis, heart diseases, kidney diseases, insomnia, Cancer and CNS sedative. The roots also possess usefulness in gonorrhoea and jaundice and other infection.

Seed:

Internally, the seeds are described as poisonous and useful in affections of the nervous system, and externally, in skin diseases, ulcers, affections of the hair. The seeds reduced to a paste are recommended to be applied locally in sciatica, stiffness of the shoulder joint, paralysis, and other nervous diseases. In white leprosy, a paste composed of the seed and plumbago root is applied as stimulant dressing. In alopecia a paste of the seed is recommended to be rubbed on the bare scalp. The seeds are used as purgative, but in large doses are acrid poison, given rise to symptoms resembling those of cholera. Taken internally by women, the seed disturbs the uterine functions and prevents conception. Reduced to a paste they are used for contusion and inflammation. The root also used as diuretic, diarrhoea, gastritis, heart diseases, kidney

diseases, insomnia, Cancer and central nervous system sedative.

Chemical constituents:

Root and leaves contain Precol, Abrol, Abrasine, Acid-methyl-ester, Procasine, Precol, Abraline, Abrussic acid, Anthocyanine, Glycyrrhizin. Seeds contain Abrine, Precatorine, Abridin, Hypaphorine, Trigonelline, Tryptophan, Aglycoside, Abrussic acid, Haemagglutinin, Gallic acid, alanine, serine, Valine.

II. CONCLUSION:

Abrus precatorius, a semi-poisonous herbal drug available throughout India is capable of treating diseases such as Kustha (skin diseases), Visrpa (erysipelas), Krimi (worm infestations), Kandu (itching), Indralupta (alopecia), and Arsha (hemorrhoids) etc. after adopting proper purification measures. It also shows spermicidal, anti-lice and neuroprotective activity. Thus, a precatorius a multifacet drug may show a high medicinal potential if used judiciously. This plant is very important for a large number of medicinal properties hence extensive research should be done to exploit the therapeutic utility to fight against different diseases. In this review we are studied that Gunja medicinal uses, therapeutical uses, pharmacological activity, pharmacological action, taxonomy, culture and significance and side effects.

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