

Potential Use of Medicinal Plant Gokharu

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Abstract: The medicinal plant gokharu (*Tribulus terrestris*) has been used historically in numerous cultures for a variety of therapeutic purposes. It is well known for having a wide range of pharmacological qualities, including as diuretic, anti-inflammatory, and anti-microbial actions. For its possible advantages in promoting sexual health, curing urethritis, and strengthening cardiovascular health, gokharu has also been utilised in traditional medicine. This summary gives a general overview of gokharu's potential as a medicinal plant while stressing both its pharmacological traits and conventional usage. The abstract also provides a succinct assessment of the most important findings from pertinent studies on gokharu, highlighting its potential therapeutic uses.

Keywords: *Tribulus terrestris*, gokharu, , anti-inflammatory, anti-microbial, antioxidants.

1. INTRODUCTION:

The Gokshura plant, also known as *Tribulus*, is the source of the Indian Ayurvedic herb known as Gokshura (sometimes spelt Gokhru). The dried fruit of the Gokshura plant is used to make gokshura. In Hindi, or more commonly in India, *Tribulus terrestris* is known as Gokhru. Gokshura, also called Goksuraka, Gokhuri, Gokshra, Devil's thorn, Goat head, Small Caltrop, Gokharu, or Gokhri, is an essential substance used to treat urinary disorders, polycystic ovarian syndrome (PCOS), difficulties with the prostate gland, cardiac conditions, and renal issues. Additionally, it might promote physical and cognitive activity as well as muscle growth.

The fruit is known as *Trikanta*, or the Puncture vine, since it is covered in harsh thorns that may puncture a bicycle tyre. Alkaloids and phytosterols, the herb's active ingredients, work together to potentially make it a potent diuretic. In addition to urinary problems, gokshura may be able to help with hair loss, eye issues, rheumatic pain, migraines, obesity, stress, piles, and bedwetting.

Gokshura, also referred to as *Tribulus*. The Caltrop family includes the small, leafy Ayurvedic herb *Terrestris*. The name of this plant is derived from two Sanskrit words, "Go" meaning cow and "Aakshura" meaning hoof, because the fruits resemble cow hooves. The annual *Tribulus terrestris* plant belongs to the caltrop family and is found all over the world. It is adapted to grow in areas with dry climates where few other plants can flourish. It is indigenous to southern Eurasia, Africa, and warm temperate and tropical climates. *Tribulus terrestris* (genus name), family *Zygophyllaceae* Plants belong to the order *Zygophyllales*. Continent: *Plantae* It has been used for a long time for general debility, digestive tonics, ulcers, fevers, wounds, and other illnesses. Among other things, gokhru has diuretic and

aphrodisiac qualities. Powdered fruit from plants is frequently employed for the intended activity. India is home to the tropical plant known as gokhru. The Mediterranean region is the origin's hub. A gram-sized, spiky fruit of a herb, gokhru. Although it may grow in practically any type of soil, it thrives in dry, loose, sandy soils among sand dunes or in loose blown soil along field edges. Additionally, it thrives on heavy soils, particularly those that are rich or damp, as well as on compacted soils like those found by the side of roadways. The Unani medical system makes widespread use of gokhru as an aphrodisiac.

Various dosages of gokharu are offered, including powders, capsules, and pills. A healthcare professional should be consulted before using gokharu, as it should with any herbal supplement, particularly if you are on any other medications or have a medical condition. It's crucial to use gokharu with the assistance of a licenced healthcare professional. It may cause unwanted effects in certain people and interact negatively with some drugs. Before using gokharu or any other herbal supplement, do your homework and speak with a healthcare professional as you should with all natural medicines.

Since the beginning of time, medicinal plant parts and extracted phytochemicals have been employed in healthcare and are sources for novel medications. According to estimates, 25% of all medications administered globally come from plants. 150 species of the 25,000 species of medicinal plant species found in India are utilised commercially to create drug formulations. Over 80% of people on the planet only rely on plants for their health and recovery. It has been noted that cases of impotency in males are increasing rapidly, which is one of the main causes of an increase in divorce cases nowadays, due to increased stress, increased pollution, and changes in food. The usage of medicinal plants in ayurveda medicines is growing as a result of the side effects of medications being seen on human health. Gokhru is a valuable medicinal herb that is utilised in many nations as an ingredient in food supplements. Gokhru, which comes in two varieties—Chhota gokhru (*Tribulus terrestris*) and Bada Gokhru (*Pedaliu murex L.*)—is a significant medicinal herb. The various plant parts act as cardiac and have circulatory stimulants, anti-tumor, anti-pyretic, anti-epileptic, anti-inflammatory, anti-ulcer, antispasmodic, diuretic, antihypertensive, cholesterol lowering, anti-oxidant, anti-diabetic, hepatoprotective, anti-microbial activities, anti-hyperlipidemic, anti-nephrolithiatic, nephroprotective and aphrodisiac properties all of which are used to cure various diseases. Gokhru (*Pedaliu murex L.*) is used by athletes to improve their stamina and performance in addition to being utilised in herbal remedies to treat ailments. Both plants' entire life cycle is utilised in the creation of medicinal products. Numerous biologically active substances found in these two plants' leaves, roots, and fruit extracts have been studied by numerous researchers.

2. Morphological Characteristics:



Gokharu :

Synonyms: *Tribulus*, *Caltrops fruit* and *Puncture Vine*.

Biological Source: It consists of the dried ripe seeds of *Tribulus terrestris Linn.*, belonging to family *Zygophyllaceae*.

Geographical Source: Gokhru (*Pedalium murex L.*) is used by athletes to improve their stamina and performance in addition to being utilised in herbal remedies to treat ailments. Both plants' entire life cycle is utilised in the creation of medicinal products. Numerous biologically active substances found in these two plants' leaves, roots, and fruit extracts have been studied by numerous researchers.

Collection:

- Fresh seed exhibits seed dormancy and only a small percentage will germinate right away after development.
- High temperatures are necessary for plant growth and germination.
- During the autumn and winter, seeds go dormant. They then germinate in the damp conditions of late spring and early summer.
- Within 3 weeks, yellow flowers can start to bloom.
- Fruits are continuously produced in the summer and autumn.
- As many as 400 fruits can be produced by one plant.

Macroscopy:

Colour:-Fruits are greenish to gray

Odour:-Odourless

Size:-1.0 to 1.5cm in diameter, 8.5mm in thick

Shape:-Fruits are globose, consisting of 5 to 10 Woody cocci

Texture:-Hard

Taste:-Slightly bitter and astringent.

Chemical Constituent:

T. terrestris contains a wide range of chemical compounds, including steroids, saponins, flavonoids, alkaloids, unsaturated fatty acids, vitamins, tannins, resins, nitrate potassium, aspartic acid, and glutamic acid. Diosgenin and steroidal saponins are present in this plant. It contains a lot of proteins and calcium. Dried fruits contain semi-drying oil, peroxides, diastase, traces of glucosides, resins, protein, and a significant amount of inorganic elements. A crystalline residue in water containing an alkaloid-like substance is produced when the powdered fruits are extracted etherically or alcoholically and coupled with hydrochloric acid or alkaline chlorides. This material is precipitated from the solution by ammonia.

Benefits and Therapeutic Uses:

- Urinary Disorders Are Alleviated.
- Kidney Functions Are Improved.
- Sexual Health And Stamina Are Increased.

- PCOS Is Treated.
- Libido Is Increased.
- Cardiac Function Is Promoted.
- Pain Is Dismissed.

Botanical Name: Tribulus terrestris Linn.

Taxonomic Tree

Domain: Eukaryota

Kingdom: Plantae

Phylum: Spermatophyta

Subphylum: Angiospermae

Class: Dicotyledonae

Order: Geraniales

Family: Zygophyllaceae

Genus: Tribulus

Species: Tribulus terrestris

Vernacular Name

English: *Calotropis fruits* **Gujarati:** *Bethagokhru*,

Telugu: *Palleru kayalu* **Hindi:** *Gokhru*

Tamil: *Nerinjil* **Sanskrit:** *Shvadanstra*

Marathi: *Sarate* **Punjabi:** *Bhakhra*

Oriya: *Gukhura* **Kannada:** *Sannaneggilu*

Kashmiri: *Michirkand* **Urdu:** *Khorkashak*

Scientific Classification:

Kingdom: *Plantae*

Division: *Phanerogams*

Class: *Dicotyledonae*

Order: *Geraniales*

Family: *Zygophyllaceae*

3. Types Of Gokhru:

1) *Chota Ghokru (Tribulus Terrestris)*

2) *Bada Ghokru (Pedalium murex L.)*

1) *ChotaGhokru (Tribulus Terrestris) :*



Fig :ChotaGokhru.

Tribulus terrestris, commonly known as chhotagokhru, is also known as gokshura, bhakhdi, puncture vine, and goat-head. It is an annual shrub found in warm, subtropical, and Mediterranean climates, including those in India, China, the Southern United States, Mexico, Spain, and Bulgaria. Because of its tiny woody prickly fruits, Chhota Gokhru (*T. terrestris*) is frequently referred to as a noxious weed. Flavonoids, glycosides, alkaloids, steroids, and saponin derivatives including tigogenin, hecogenin, ruscogenin, diosgenin, chlorogenin, and sarsasapogenin are present in the greyish-brown fruit powder of *Tribulus terrestris*. It is utilised in traditional treatments because of its diuretic, analgesic, anti-diabetic, antiurolithic, aphrodisiac, anthelmintic, and anti-microbial characteristics.

Distribution: The Chhota Gokhru (*Tribulus terrestris*) plant is found all over India and grows as high as 3300 m in the Himalaya. The plants are widespread in the country's hot, sand-covered, and dry regions, including the Deccan, Gujarat, Andhra Pradesh, South Haryana, and Rajasthan.

2) *Bada Ghokru (Pedalium murex L.) :*



Fig: Bada Ghokru.

The plants are widespread in the country's hot, sand-covered, and dry regions, including the Deccan, Gujarat, Andhra Pradesh, South Haryana, and Rajasthan. *Pedalium murex* is also known by the common names Bada Gokhru, BrihatGokhru, Large Caltrops, Peru-neranji, and Kaitunerinjil. It is a medicinal plant that is used in Ayurveda to treat genitourinary system issues such as calculi, spermatorrhoea,

amenorrhea, dysmenorrhea, inflammation, ulceration, and fever. Due to its potent diuretic effects, which increase urine flow, it is used to treat urinary, renal, and dropsy problems. The fruits' decoction has demulcent, diuretic, antispasmodic, and aphrodisiac properties. It is cooling, enhances hunger, purifies blood, tonic, and aphrodisiac, according to Ayurveda. It has been discovered that the plant's fruits are particularly good at treating spermatorrhoea. *Tribulus terrestris* Linn, also known as Gokshura or ChotaGokhru, Trikantak, Land caltrops, and Puncture vine, is entirely distinct from Bada Gokhru.

Distribution:

Depending on the individual region and environmental factors, Bada gokharu distribution can change. It is a resilient plant that thrives in a variety of soils and can withstand a range of environmental conditions. Although it frequently inhabits arid and semi-arid areas, it likes dry, sandy soil. Overall, Bada gokharu is extensively dispersed throughout Asia, especially in India, and its reputation as a medicinal plant is only increasing.

4. MATERIALS AND METHODS:

Materials and techniques for employing *Tribulus terrestris*, a medicinal plant, for a variety of purposes:

Materials:

1. Gokharu plant (*Tribulus terrestris*): The dried fruits or aerial parts of the Gokharu plant are commonly used in traditional medicine.
2. Water or other suitable solvents for extraction.
3. Mortar and pestle or grinder for grinding the plant material (if required).
4. Sieve or filter paper for filtration (if required).
5. Glass containers for storage of extracts or preparations.
6. Optional: Additional materials for specific purposes, such as carrier oils, alcohol, or other herbs or ingredients for formulation or combination.

Methods:**1. Collection and Preparation of Gokharu Plant:**

The mature fruits or aerial parts of the Gokharu plant are collected and dried in shade or by other suitable methods to retain their medicinal properties. Once dried, they can be stored in an airtight container until further use.

2. Extraction of Gokharu Plant:

Gokharu can be extracted using different methods, such as decoction, infusion, maceration, or cold percolation. One common method is to prepare a decoction by boiling the dried plant parts in water for a specific period of time, usually 15-30 minutes, and then filtering the liquid to obtain the extract.

3. Formulation and Combination:

Depending on the intended use, Gokharu extract can be used alone or formulated with other herbs, carrier oils, or ingredients to make various preparations, such as oils, creams, capsules, or teas. The formulation and combination may vary depending on the specific purpose, such as for treating urinary disorders, enhancing athletic performance, or improving sexual health.

4. Dosage and Administration:

The dosage and administration of Gokharu extract or preparations may vary depending on factors such as age, health condition, and intended use. It is important to follow the recommended dosage and administration instructions provided by a qualified healthcare professional or as indicated on the product label.

5. Safety Considerations:

Like any other herbal remedy, Gokharu should be used with caution and under the guidance of a qualified healthcare professional, especially if you are pregnant, breastfeeding, have pre-existing health conditions, or are taking medications. It is important to be aware of any potential side effects, interactions, or contraindications associated with Gokharu and use it accordingly.

6. Quality Control:

Ensuring the quality and authenticity of the Gokharu plant material is important. It is recommended to obtain Gokharu plant or extracts from reputable sources that adhere to good manufacturing practices (GMP) and quality control standards.

5.POTENTIAL USE OF GOKHARU:

➤ Relieves Urinary Disorders :

The mixture is an effective treatment for urinary diseases such incontinence, painful urination, and burning during urine. When the medication is ingested after being infused with cow's milk, it not only lessens the discomfort and burning during urination but also encourages normal urine. It cures dysuria and is a moderate diuretic. Urinary infections are avoided by the many antibacterial and anti-microbial characteristics.

➤ Improves Kidney Functions :

The traditional formulation aids in the elimination of extra uric acid and maintains the uric acid level in the kidneys, promoting healthy kidney function and preventing or treating gout. Gokshurachurna has an anti-lithiasis function that stops kidney stones from forming, aids in breaking or shrinking already-formed ones, and so guards against a number of underlying medical diseases such polycystic kidney disease, kidney stones, and cystitis. Since it aids in controlling diabetes, it also treats associated symptoms like frequent urination.

➤ Boosts Sexual Health And Stamina :

Generally speaking, gokshurachurna is successful in enhancing male health. The churna has strong spermatogenic qualities that are highly helpful for treating sperm abnormalities such as teratospermia (abnormal sperm shape), oligospermia (low sperm count), asthenozoospermia (sperm motility), and hypospermia (low volume of semen). It enhances the production of luteinizing hormone and testosterone since it is a natural antioxidant. It also treats issues like immature sex and erectile problems.

➤ Treats PCOS : (Polysystic Ovarian Syndrome):

The health of men may usually be improved with gokshurachurna. The churna contains strong spermatogenic characteristics that are highly helpful for treating sperm abnormalities such teratospermia, oligospermia, and asthenozoospermia as well as hypospermia (low sperm volume), asthenozoospermia, and sperm motility. It also promotes spermatogenesis, or sperm production. It increases the production of testosterone and

luteinizing hormone since it is a natural antioxidant. Additionally, it manages erectile dysfunction and early ejaculation.

➤ **Boosts Libido:**

The formulation's aphrodisiac properties aid in lowering mental stress and anxiety and stimulate the hormones that increase libido. It promotes virility and stamina in men and increases male and female fecundity.

➤ **Promotes Cardiac Functioning:**

Due to the formulation's potent antioxidant properties, it is incredibly helpful in treating a variety of heart conditions. It strengthens the heart muscles and stops the buildup of lipids and other debris in the blood vessels, avoiding the development of atherosclerosis. Gokshura's bioactive components lower levels of NEFA, or non-esterified fatty acids, which lowers the risk of heart attacks, strokes, blood clots, etc. Additionally, it is essential for preserving blood cholesterol levels.

➤ **Aids In Digestion:**

This formulation's digestive qualities have been proven to be very helpful in enhancing digestion. It increases the absorption of vital nutrients and improves digestion by stimulating the release of digestive juices. Additionally, it relieves the signs of irritable bowel syndrome, ulcerative colitis, abdominal pain, and distension. It also reduces fluid retention. Also read: Gut Health: 7 Ways To Improve Digestive Disorders.

➤ **Dismisses Pain:**

Since Gokshura has both analgesic and anti-inflammatory characteristics, it plays a critical role in reducing pain and inflammation. As a result, the churna can be widely utilised to reduce pain in cases of osteoarthritis and rheumatoid arthritis.

Various Ways To Take Or Use Gokharu:

The dosage of this churna may differ from person to person based on the type and severity of the illness as well as the person's doshic body type. Before ingesting it, it is strongly advised that you speak with an Ayurvedic physician or practitioner.

- **Gokharu Tablet/ Capsule:** Daily dosage: 1-2 pills, The doctor may advise taking the tablets or capsules with milk or water, ideally after meals.
- **Gokharu Kwath:** Gokshura Kwath is dosed at 4-6 teaspoons. After meals or as directed by the doctor, combine it with milk or water and consume it.
- **Gokshuradi Guggulu:** Dosage: 500mg – 1 gm, Take it raw or with water, usually after meals or as directed by your doctor.

Adverse Effects: According to the majority of studies, gokshura is generally safe to eat and has no negative side effects. Gokshura has the ability to make men's prostates bigger and upset their stomachs. Consult a licenced Ayurvedic physician before including gokshura in your daily diet, and use caution in the following circumstances.

Allergy symptoms: Some people who use Gokshura may experience allergic reactions like stomach discomfort and rashes.

Precautions to taken with Gokshura:

Before using Gokshura, it's crucial to talk to your doctor if you have one or more of these problems.

- Consuming gokshura while pregnant or nursing has the potential to be dangerous. It can be detrimental to the baby's growth. Consuming gokshura while expecting or nursing is not advised.
- Benign prostate hypertrophy (BPH) or prostate cancer: Gokshura may exacerbate prostatic conditions including BPH or prostate cancer. Preliminary research suggests that gokshura can increase prostatic weight.
- Gokshura has been demonstrated to reduce blood sugar levels in people with diabetes. As a result, the dosage of diabetes medications may need to be changed by the doctor.
- Surgery: Gokshura may induce erratic blood sugar levels. Controlling blood sugar as a result could be challenging both during and after surgery. Gokshura should be stopped at least two weeks before to surgery as a result.

6.CONCLUSION:

On the basis of their multifaceted potential, it is concluded that *Tribulus terrestris* and *Pedaliium murex* are underutilised and are now only used for the maintenance of health by Ayurveda, Unani, and traditional practitioners. Since Indian producers of herbal medicines use the fruits of the plants as a raw material for developing pharmaceutical formulations, the plants have commercial value. Because plant-based products have less harmful health effects and are more affordable these days, there may soon be a high demand for these plants as a raw material for pharmaceutical companies. This is because people are becoming more worried about their health. Because of this, plants that grow on sandy marginal soils will generate greater revenue.

Tribulus terrestris plant may be used as a herbal medicine for effective blood pressure control because of its diuretic (potassium sparing), cardioprotective, and antihyperlipidemic effects. The main objectives of these pharmaceutical efforts were the cardiogenic properties and sexual function. Steroid saponins and flavonoids were shown to have anti-inflammatory and anti-aging characteristics in addition to contributing to pharmacological actions. These days, a variety of ailments are treated with this TT as a prescription medication or dietary supplement. and studies into the production of new herbal remedies and health products.

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