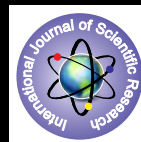


GOKHRU



Environment

KEYWORDS : gokhru, Scientific Studies, research, benefits

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ABSTRACT

Tribulus terrestris a Far East herb also known as Gokshura in Ayurveda and Bai Ji Li in China which traditionally has been used for sexual and kidney dysfunctions as well as colic pains, hypertension and hypercholesterolemia. In Ayurvedic system of medicine Gokhru is indicated for the treatment of urinary disorders, kidney diseases, diseases of the genito-urinary system, calculus affections and impotence. It is also very beneficial in Itchy skin and blood purification. In this paper history, uses, scientific studies and other benefits has been discussed.

Introduction: The usage of Gokshura dates back to Vedic period. Sanskrit grammarian Panini quoted this herb in his work (Panini Ghana Patha, 4/3//154). Charaka described it as Mutra virecaniya (diuretic), Sotha hara (anti-inflammatory) and krimighna (anti-microbial). This herb is known for its effect on filtration defects of renal system and urinary tract infections Prameha (diabetes) in Indian medicine.

Botanical Name: *Tribulus terrestris* (ZYGOPHYLLACEAE)

English Name: Calthrops

Hindi Name: Gokhru, Bhakra Chota gokhru

Ayurvedic name: Gokhru/Gokshura

Parts used: Fruit, Roots & whole plant

Habitat and Botany:

This herb is commonly found in sandy soil throughout India at 11,000 ft. in Kashmir. Gokhru is the plant of choice. It has a 5,000 year-old history of medicinal use in India.

Taste- Sweet And astringent

Description- A small creeping herb, all parts are clothed with hairs. Leaves pinnate compound opposite leaflets 4-7 points oblique and hairy flowers small axillary of yellow colour. Fruits with five pairs of spines

Chemical Constituents:

Gokharu (*Tribulus terrestris*) plant contain alkaloids, resins, tannins, sugars, sterols, essential oil, peroxidase, diastase and glucoside.

History

Tribulus terrestris a Far East herb also known as Gokshura in Ayurveda and Bai Ji Li in China which traditionally has been used for sexual and kidney dysfunctions as well as colic pains, hypertension and hypercholesterolemia. It has a long standing use of being a revitalizer and energizer (increases energy). In Greek history, it is widely used to treat ailments such as headache, nervous disruption, constipation, and sexual dysfunction. In China and India, *Tribulus Terrestris* is used as the remedy for liver, kidney, urinary and cardiovascular.

Gokharu as Medicinal Herb In Ayurvedic system of medicine Gokhru is indicated for the treatment of urinary disorders, kidney diseases, diseases of the genito-urinary system, calculus affections and impotence. It is used for regulation of heart functions, reduction of inflammation, indigestion, chronic cough and asthma also. In Ayurveda it is considered that Gokhru helps to improve vitality and vigor. Gokshur is widely used in various formulations in Ayurvedic medicine. Some of the classical formulations containing Gokshur are: Gokshuradi churan, Gokshuradyavleha, Gokshuradi gugglu, Gokshuradi kwath, Dash-moolarishta.

The fruits of Gokhru are used in Ayurveda in the treatment of kidney stones, painful urination and other genito-urinary disorders, mainly in the form of an infusion. They are also prescribed for the treatment of breathing difficulties, diabetes, rheumatism, piles, dropsy, heart diseases, impotence and Bright's disease. The leaves of this medicinal plant of India are considered to possess stomachic properties, and a paste prepared from

them is used in the treatment of bladder stones.

Used in--

Cooling, Diuretic, Tonic, Aphrodisiac, It benefits in both male and female Uro-genital system (Urinary system and Reproductive system) like for impotence, Venereal diseases, Sexual debility, Low sperm count, Dysuria (painful micturition). Its Aphrodisiac action due to the presence of Saponin in Gokhru. It is also very beneficial in breaking the calculus especially in kidney stones. It boosts the hormones in the body. Hormones produced by the body or taken in via Phytosteroides do not accumulate in tissue and are easily broken down by our bodies. Therefore the body is not going to incorporate/metabolize a large quantity of hormones at any stage. Gokshur stimulates increase in hormone production in the body and also stimulates its effect. Its health benefit of hormone supplement action from anti-aging to antioxidants is well known. One group of natural sources for hormones is the plant steroid (i.e. Plant that have been laboratory proven to contain steroid hormones). There it has been used for boosting hormone production in men and women. It can naturally support testosterone productions which in turn build muscle size and strength. It is also very beneficial in Itchy skin and blood purification

Uses of Gokhru

In the treatment of sexual disorders: The furstanolic type saponins (protodioscin and protogracilin etc.), from *T. terrestris*, has stimulating effect on spermatogenesis by increase in the amount of Luteinizing Hormone (LH) produced by Pituitary gland, which stimulates the secretion of male hormone 'Testosterone', resulting in significant improvement in quality and quantity of sperm. Sperm needs 80 days to mature, so it is recommended that person who is hoping for improved sperm quality should take the extract for at least this period, with constant supervision of his medical doctor. A composite drug containing *T. terrestris* fruit with *Mucuna pruriens* (seeds) *Glycyrrhiza glabra* (stem) *Withania somnifera* (roots), *Tinospora cordifolia* (stem) *Meristicta fragrans* (fruit) has been tried on 52 male patients of sexual dysfunction for four weeks, an excellent improvement in erection, duration of coitus and ejaculation and post coital satisfaction. *Tribulus terrestris* extract for the muscular growth: *T. terrestris* extract improves the body's ability to build muscle mass and strength by promoting the production luteinizing hormone, thereby stimulating the secretion of testosterone, resulting in the development of male-like characters (i.e. strong muscles and strength) with increase in sex drive, as well as production of red cells, contributing to improvement in blood circulation and good oxygen transport. In this way it works only within body's natural limits, supporting the balanced natural hormone levels. So it is claimed that *T. terrestris* is not a hormone supplement. It only helps to improve strength in conjunctions with an exercise programme that places the muscles under strain and allow them to recover. *Tribulus terrestris* as adaptogenic: Multi-herbal formulation in Ayurveda with *T. terrestris* exerts significant adaptogenic activity. Stress induced paradigms were found to be reversed by the multi-herbal preparation. *Tribulus terrestris* in the treatment of cardiac diseases: The clinical trial shows that a saponin of *T. terrestris* have action of dilating coronary artery and improving coronary circulation,

so recommended for treating angina pectoris. Chinese drug named 'Xinnao Shutong' is made of crude saponins of Chinese *T. terrestris*, which has significant effect in the treatment of coronary disease, myocardial infarction and cerebral diseases.

Antimicrobial activity of *Tribulus terrestris*: The bacterial activity of *T. terrestris* varies depending on the origin and plant's part used. The ethanolic extract of the fruit and leaves of Indian herb has activity against *E. coli* and *S. aureus*, but ethanolic extract of *T. terrestris* from Yeman has no detectable anti-bacterial activity, against any of the reference bacteria. The methanolic extract of the same herb grown in Iran has anti-bacterial activity. The activity is reported due to spiroaponins, present in the herb.

Cytotoxic activity: *T. terrestris* of different regions (Bulgaria, China and India) and different parts of plants (stem and fruit) shows that only the spiro compounds exhibit remarkable activity. The inhibitory effect of saponin mixture from Chinese origin on Bcap37 breast cancer cell has potent inhibitory effect.

Anthelmintic activity: The 50% methanolic extract of Indian *T. terrestris* (whole plant) has been reported as anthelmintic activity, it is due to the tribulosin and sitosterol glycosides. [14]

Tribulus terrestris is a famous herb traditionally used by different civilizations for different purposes. In Ayurveda, the herb is known for anti-urolithic, diuretic and aphrodisiac while in Traditional Chinese Medicine (TCM), it is used for eye trouble, edema, abdominal distention, sexual dysfunction and veiling. In Bulgaria as a folk medicine, it is used for blood purification and haemorrhoids while in south Africa it is used as tonic for diarrhea and disease of throat and eyes. In the 'Shern-Nong Pharmacopoeia' (the oldest known pharmacological work in China) *T. terrestris* is described as a highly valuable drug to restore the depressed liver.

Scientific Studies:

Nephroprotection: At a dose of 200 mg/kg/day p.o it protected rats against gentamycin-induced renal damage in both structural and functional terms (Nagarkatti et al., 1994).

Lithotriptic activity: AE at a dose of 5 g/kg/ b.w. administered to sodium glycolate fed rats produced a significant reduction in urinary oxalate excretion, and a significant increase in urinary glyoxylate excretion as compared to in sodium glycolate fed animals (Sangeeta et al., 1994).

Urinary tract infections: Useful in UTIs as reported by Adhav (1985), Polly (1987), Khosale (1991) etc.

Diuretic activity: Decoction of fruit in rats (Gujral et al., 1955) and Ae in rats and dogs exhibited diuretic effect (Karandikar et al., 1960).

Other uses include infertility, hypertension, liver disorders, infections, cancer etc.

Cultivation Technology: The plant grows well in sandy soil where there is a good drainage. The land is ploughed well and seeds are sown in nursery in the month of June-July. 10-15 cm long seedlings are transplanted to the main plots at the distance of 15x15cm. Irrigate the field immediately after transplanting and in late stages, it does not require much water.

Harvesting: Fruits can be collected during September-November. Dig-out the roots, clean and dry before sale. Now a days, whole plant is also sold in the trade.

Economics

Tribulus Terrestris powder, extract is in great demand for dietary supplement to increase energy, provide healthy hormone function, enhance muscle movement and provide energy for the athletes during the training session. It is also widely used in various formulations in Ayurvedic medicine.

The prices of *Tribulus Terrestris* powder and extract is determined by market demand.

conclusion

Various preparations of *T. terrestris* in market justify their existence as the synthetic compound offers the benefit of fast action and instant erection in erectile dysfunction (ED) patients but requires each and every time to initiate, while protodioscin address the root cause of the imbalance and deficiency, allows its users to regain ability. *T. terrestris* preparations are array for diabetic patients as on clinical trial on diabetic and non-diabetic male patients with ED or reduced libido, when treated with protodioscin (Libilov) for three months, improved sexual drive was reported in 67% of non-diabetic ED men and 53% of diabetic ED patients. The tonic activities of *T. terrestris* is due to intensifying protein synthesis and enhancing the activity of enzymes associated with energy metabolism, resulted increase in iron absorption from small intestines and inhibit lipid peroxidation during stress,

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