Tribulus terrestris is 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 viracayya (diuretic). Sotra hara (ant-inflammatory) and krimihna (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 a 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, steroids, essential oil, peroxidase, diastase and glucoside.

**History**

Tribulus terrestris is 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 dysfunctions.

**Uses of Gokhru**

In the treatment of sexual disorders: The furarytanolic type saponins (protodioscin and protogracilin etc.), from T.terrestris, has stimulating effect on spermatogenesis in increase in the amount of Luteinizing Hormone (LH) produced by Pituitary gland, which stimulate 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 Maconia pruriens (seeds), Gycrrhiza glabra (stem) Withania somnifera (roots), Tinospora cordifolia (stem) Meristica fragrans (fruit) has been tried on 52 male patients of sexual dysfunctions 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 Yemen 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 spiro saponins, present in the herb.

Anthelmintic activity: The 50% methanolic extract of Indian T. terrestris (whole plant) has been reported as anthelmintic activity. The inhibitory effect of saponin mixture from Chinese origin on Bcap37 breast cancer cell has potent inhibitory effect.

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-urolithi, diuretic and aphrodisiac while in Traditional Chinese Medicine (TCM), it is used for eye trouble, 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 glycolate excretion as compared to in sodium glycolate fed animals (Sangeeta et al., 1994).

Urinary tract infections: Useful in UTIs as reported by Adhav (1985), Poly (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 well-plowed 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 15x15 cm. 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 prepayments 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 per-oxidation during stress.