International Journal of Agriculture Innovations and Research
Volume 7, Issue 4, ISSN (Online) 2319-1473
Manuscript Processing Details (dd/mm/yyyy):
Received: 25/01/2019 | Accepted on: 13/02/2019 | Published: 26/02/2019

Role of Gokshur in Urinary Disorder - A Review

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Abstract **– Plants have a significant role in maintaining human health & improving Quality of life, Gokshura one of such plants. Gokshura (Tribulus Terrestris) one of the compo--nents of Dashmoola widely used in Ayurveda singly as well as in compound. Gokshura is a prostrate, annual or biennial weed of the pasture lands growing in hot, dry and sandy region in the rainy season. The herb is indicated for the treatment of urinary tract infection, kidney diseases, calculus affections, diabetes (Prameha) in Indian medicine. It is also used to treat in arthritis, inflammation, asthma, impotency, Heart diseases, etc. Simple & multi - ingredient formulations made of Goksh--ura are listed in the ayurvedic formulary and pharmacopeia of India and scientific studies have provided enough evidence of its varied usefulness in urinary and other diseases. This article explores Anti-Diabetic, Anti-Urolithic & Diuretic activity of Gokshura.**

Keywords **– Dashmool, Kidney Disease, Diabetes, Calculus Affections, Diuretic.**

I. INTRODUCTION

Gokshura is a medicinal plant mentioned in ayurvedic classics, & the source plant is tribulus terrestris Linn of Zygophyllaceae family. It is a procumbent herb found, in the waste lands and dry habitats throughout the warmer regions of India. Gokshura has been used as a single drug & used as a component in many ayurvedic formulation like gokshuradi guggulu, dashmoolaristha, rasayana Churna, Jatyaditaila, Dhanwantharam Kashaya, Maharasnadi Kashaya yogarajoguggulu and amritharistham etc. Many parts of Tribulus Terrestris (gokshura) have been used as a folk medicine for thousands of years in India. Numerous bioactive pry to chemicals, such as saponins and flavonoids, have been isolated and identified from tribulus terrestris that are responsible alone or in combination for various pharmacological activities. This herb is mainly known for its effect on filtration defects of renal system, urinary tract infection, dysuria diabetes mellitus, calculus, burning micturition& kidney disease etc.

II. MATERIAL AND METHODS

Literary review of Gokshura

Literally the word gokshura means the spines of the fruit that injuries a grazing cow or cattle, Tribulus is a latin word indicating trouble pointing to the three projecting, Spikes of fruit in latin "terrestris" means "on land" Thus meaning of tribulus terrestris together can be understood as three spike fruit growing on land . It is found all over India up to 11,000 ft in Kashmir, Ceylon, and all worm regions of both hemispheres. It is a common weed of the pasture lands, road siders and other waste places, chiefly in hot, dry and sandy regions including west Rajasthan & Gujrat in India.

History

On comprehensive review of ayurvedic classics it was found that gokshura is described in various ayurvedic grantha. In charaka samhita, it is described as shvadansth- - raghrita used in ashmari, in sushruta samhita it is described in mutrakrichchra, in asthangahridaya it is described as Rasayana, Harita samhita, it is described asashkmarihara, in Bhava Prakash nighantu its properties are described as vrishya, ashmarihara, prameha, hridroga. Classification of gokshura in different Ayurvedic Text is listed "Table A"

Table A. Classification of Gokshura in different ayurvedic Texts

S.N.	Samhita	Varga
1	Charaka samhita	Krimighna, anuvasanopaga, mootravirechaniya, madhuras kanda, aasthapan
2	Sushruta samhita	Vidarigandhadi verratarvadi, laghupanchmoola madhura varga
3	Astanga Hridaya	Vecrtaradi gana madhuragana
4	Madamapala Nighantu	Abhayadi Varga
5	KaiyadevaNighantu	Oshadhi Varga
6	Raja Nighatu	Shatahvadivarga
7	PriyaNighantu	Haritakyadi varga
8	Dhanavantari Nighantu, sodhala nighantu, Bhavaprakash Nighantu, Shaligrama Nighantu	Guduchyadi varga

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Botanical Classification:-

Kingdom	-	Plantae
Division	-	Phanerogams
Subdivision	-	Angiospermae
Class	-	Dicotyledonae
Subclass	-	Polypetalae
Series	-	Disciflorae
Order	-	Giraniales
Family	-	Zygophyllaceae
Genus	-	Tribulus
Species	-	Terrestrislinn

Description

It is small prostrate hirsute or silky hairy shrub. Shrub spreads on land with 0.5 -1 mtr of height Branches Spread from all the sides leaves are opposite, often uneaual, paripinnate, pinnae from live to eight pairs, elliptical or oblong lanceolots leaves like that of gram plant. Flowers are yellow in coloured with five petals fruits are slightypentogonal having 2-3 sharp thorns. There are sevral seeds in each grows with transverse partitions between them the seeds are oily in nature when fresh the root is slender, fibrous, cylindrical, frequently branched, bearing a number of small rootlets and is of light brown color, Roots 10-013 cms long, smoky with slightly strong smell and sweet.

Variety

Brahuat (large) - Pedaliaceae family, pedalium murex having large leaves and fruits Laghu (small) - which is described above. Parts in use - fruits, roots, whole plants,

Pharmacological Review

In modern pharmacology, action of a drug depends on active principle whereas in ayurved system mode of action of the drug depends on its five principle known as raspanchaka.

a) Rasa (taste) - Madhura (sweet).
b) Guna (Properties) - Guru (heavy to digest), singdha (unctuous).
c) Veerya (Properties) - sheeta (cooling).
d) Vipaka (taste after digestion based on activity) - Madhura (sweet).
e) Karma (pharmacological action) - Burmhana (nourishing), vatanut (pacifies vatadosha), Vrusya (aphrodisiac), Ashmarihara (removes urinary stone), Vastishodhana (cures bladder ailments), rasayan (rejunvinator).

Chemical constituents

Different parts of whole plants were found to contain a numbers of chemical constituents that are placed in below table –

Table B. Chemical Constituents.

Parts	Chemical Constituents
Plant	Astragalin, chlorogenin, cistocardinb, cracillin, D(+) pinitol Harman, Polysaccharide H, Ruscogenin, Saponside-C,5-(hydroxyl sulpho- nyloxy) Jasmonic acid, He- Cogenin 3- o- Beta-D Glucopyranosyl - Beta-D Glactoopyranoside etc.
Leaf	Ascorbic acid, Ash, Ca, Carbohydrate, fat, fiber, Iran, Oxalates,Pphosphorus,Potassium, Protion Tribuloside
Flower	Beta-Sitosterol, Compesterol, Gitogenin kaempferol, Kaempferol -3-Beta D (6”P-loumaroyl), Glucoside, Kaempferol -3- Rutinoside, Neogitogenin, Quecetin, Stigmasterol
Fruit	Aspartic acid, fat, glutamic acid, linoleic acid, Glucopyronoside, Olieic acid, Stearic acid
Root	Duacosterol, desoxydisogenin, disogenin necogenin protodioscin, rutin terrestrosides , tribulosin
Seed	Fat, Harmine, Protein

III. Discussion

Gokshur posses madhur ras, madhur vipak, & sheet virya, singdha guna which cause dieresis by increasing kleda in the body. Kleda increases urine formation. By the virtue of above property, this is Vata Pitta Shamak. Urinary tract infection, urinary disorder, calculus affections and diabetes are most common diseases encountered and treated world wide Gokshur is useful for improving the urinary function and management of urinary complaints resulting from infection, ulceration, calculi and discharge.

The diuretic properties at tribulus terristris are due to large quantitys of nitrates & essential oil present in fruits and seeds. The diuretic activity can also be attributed to the presence of potassium salt in high concentrate. The fruits of Tribulus Terristris (TT) have long been used in traditional system s of medicine for the treatment of various urinary diseases including urolithiasis. Calcium oxalate is a major type of crystal found in kidney stone. The ethanolic extract of terribulus terristris fruits and its fractions were studied to evulate its anti urolithic potential using different models. The experiments revealed that TT extract not only has a potential to inhibit nudeatm and growth of the ca ox gystals but also has aytoprotective role. TT was found to inhibit store formation in various models of urolithiasis using sodium glylcoate and ethylne glycol.

Glycolate Oxidase (GOX) one of the principal enzymes involved in the pathway of oxalate synthesis converting glycolate to glyoxylate by oxidation and finally to oxalate. The antiulothic activity of TT is its Gox inhibition uercetin and kaempherol, active components of TT were found to be non-competitive and competitive inhibitors of GOX, respectively.

Saponin from TT possesses by hypogylcemic properties, TT methanolic extract caused a significant decrease, in blood glucose level and glycosylated heamoglobin, T.T. significantly reduced the level of serum glucose, serum triglycride, and serum cholesterol, white serum superoxide dismutase (SOD) activity was found to be increased in alloxan induced diabetic mice.

IV. Conclusion

Gokshur (Tribulus Terristris) a commonly available weed is of significant values in the traditional systems of medicine, Viz, Ayurved, Its various parts contain a variety of chemical constituents which are of medicinally, importance such as falvonoids, flavonl glycosides, steroidal saponin and alkaloids. It has diuretic, antiurolithic and anti-diabetic activities. Considered the available literature and TT plant could have a potential as herbal medicine for the effective blood pressure control due to its diuertic activity (potassium sparing) and cardioprotective activity. It is concluded that Gokshur (Teribulus Teristris) has, diuretic, antidibetic and antiurolithic effects.

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