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A comprehensive tabular review on Asparagus racemosus

Pragyandip P.Dash[1]*

[1] Amity institute of Pharmacy Amity University, Lucknow, India

Abstract

The medicinal plant Asparagus racemosus is a tropical and subtropical plant spread over India. The medicinal uses of the plant is already established in different standardize books in pharmaceuticals. The plant has shown numerous pharmaceutical importance in the crude as well as the extracted form.Several active metabolites have been isolated from this plant like saponins,sarasapogenis,flavonoids, rutin,qurecetin,alkaloids etc. My study was aim to give in details of phytoharmacological study of the plant Asparagus racemosus.

Key words: Saponins, Sarasapogenis, flavonoids, rutin, qurecetin and alkaloids

Introduction

The plants with medicinal preoperties and source for more than a few contemporary drugs (Singh 2004; Chauhan 2011; Rawat& Singh 2013; Bianchi 2015). This are very useful gift for humankind. Ever since medicinal plants of Asparaguscae Family are in use by the villagers as food and for medicines (Chauhan 2011). The family has more than 300 species and it is known as shatavari (Alok 2013). The opposite common names of this plant in several Indian languages are Bengali: Shatmuli; English: Wild aspar- agus; Gujarati: Satavari; hindi: Satavar, Satavari, Satmuli; Kannada: Shatavari; Malayalam: Satavari; Marathi: Asvel, Shatmuli, Satavari; Oriya: Chhotaru, Mohajolo, Sotabori; Punjabi: Bozidan, Satawar; Sanskrit: Satamuli, Satapadi, Shatavari; Tamil: Tannirvittan, Nirmittan, Ammaikodi; Telegu: Pilli gaddalu; Urdu: Satawar, Satavara, Shaqaqulmisri, Satawar.it has a numerous medicinal properties ranging from adaptogenic, neurotonic, anti ulcer, neuro protective, anti inflammatory,antidiarroheal,antitussive,antioxidant,antifungal,anti bacterial, treatment of gout, prevents ageing, gonorrhea etc. With this vast number of activity it also posseses numerous chemical constituents for further development and study.the majorfocus o the studyn is to get as much information for the researcher to find new novel molecules for the well being of mankind.

A. racemosus

Morphology

Branched spiny under shrub with tuberous short rootstock.

Roots: Variety of tuberous roots.

Stems: Armed with numerous recurved spines, sickle-shaped cladodes.

Leaves: scaly leaves

Flowers: Pierisrapae

Fruit: globose berries.

Geographical source

This plant is widely grown in tropical and subtropical parts of India and within the himalayas (Mazumdar&Mukhopadhyay 2006). Found in Sri Lanka , Indonesia, Australia and tropical Africa (Chauhan et al. 2011).

Phytochemical investigations

Chemical constituents	**Biological source**	**Methods of estimation**	**references**
Steroidal saponins (Shatavarins I–IV)	Roots	Extraction	Thomsen 2002,anonymous wealth of india ,1987
Quercetin, rutin,hyperoside	Flower ,fruit	Extraction	Thomsen 2002,anonymous wealth of india ,1987
Diosgenin and quercetin-3 glucuronide	Leaves	Extraction	Thomsen 2002,anonymous wealth of india ,1987
Sarsasapogenin	Whole plant	Invitro Culture	Asmari et.al 2004
Sarsasapogenin	-	callus cultures	Kar and sen 1985
Racemofuran	-	DPPH separation	Wiboonpun et.al 2004
8-methoxy-5,6,4 — trihydroxyisoflavone 7-o—d-glucopyranoside	Roots	-	Saxena and chourasia 2001
Polycyclic alkaloid Asparagamine	Whole plant	Isolation	Sekine et.al1994
1-dihydrophenenthrene derivative named 'Racemosol	Root	**Ethanol extract**	Sekine et.al1997
Sarsasapogenin and kaempferol	Woody portion of root	Isolation	Ahamad and jain 1991.
Phytoecdysteroids	Seeds	Isolation	Dinan et.al 2001
sapogenins and saponins	Different parts		hayes et al. 2006
shatavarin VI, VII ,VIII ,IX ,X , I, IV ,V ,immunoside, and schidigerasaponin	Roots	RpHPLC method	hayes et al. 2008
(25S)-5β-spirostan-3β-ol-3-O-{β-d-glucopyranosyl(1→6)- [α-l-rhamnopyranosyl(glucopyranosyl(1→4)]-β-d-gluco-pyranoside} (racemoside A, 9), (25S)-5β-spirostan-3β-ol-3-O-α-l-rhamnopyranosyl(1→6)]-β-d-glucopyranosyl(1→6)- β-d-glucopyrano-side (racemoside B, 10) and (25S)-5β-spirostan-3β-ol-3-O-{α-l- rhamnopyranosyl-(1→6)-[α-l-rhamnopyranosyl (1→4)]-β-d-glucopyranoside (racemoside C, 11)	Fruits	methanolic extract	Mandal et al. 2006
8-methoxy-5,6,4′-	Roots	**Ethanol**	Sekineet al.1997

trihydroxyisoflavone-7-O-β-d-glucopyranoside (14) (Saxena&Chourasia 2001) and 9,10-dihydro-1,5-dimethoxy-8-methyl-2,7-phenanthrenediol		**extract**	
Quercetin andquercetin-3-O-rutinoside and quercetin 3-O-galactoside.	Roots and flowers	**isolated**	Mazumdar&Mukhopadhyay 2006
quercetin 3-glucuronide,sapogenin, aanddiosgenin	Leaves	**Isolated**	Mazumdar&Mukhopadhyay 2006

Pharmacological applications

Uses	References
Recuperative effect on the feminine reproductive organs, general tonic and a female reproductive tonic	Chauhan et al. 2011
Prevents ageing, increases longevity, provides immunity and improves mental function	Alok et al. 2013
Stomachic, tonic, aphrodisiac and astringent to the bowels.	Ayurveda
Dysentery , tumor, inflammation, biliousness, diseases of the blood and eyes, rheumatism and diseases nervous system	Wealth of India 1987
Kidney and liver disorders, gleet and gonorrhea	Unani
Gout, puerperal diseases, lactic disorders and hematuria	Ayurvedic pharmacopoeia
Peptic ulcers	Bopana&Saxena 2007
Adaptogenic activity	Rege et al. 1999
Immunosuppression and cognitive dysfunction in albino rats	Bhattacharya et al. 2000
Antibacterial efficacy against Escherichia coli , Shigelladysenteriae, Shigellasonnei, Shigellaflexneri, Vibrio cholerae, typhoid bacillus , Salmonella typhimurium , Pseudomonas putida, Bacillus subtilis and Staphylococcus aureus	Mandal, Nandy, et al. 2000
antifungal activities against Malassezia furfur and M. globosa, anti-dandruff and anti-in- flammatory	Onlom et al. 2014
Bacterial diseases	Patel & Patel 2013
Antifungal activity against Candida	Uma et al. 2009
Antioxidant activity9 extend superoxide dismu- tase (SOd), catalase and vitamin C levels appreciably, while decreasing lipid peroxidase)	Bhatnagar et al. 2005
Antioxidant effect in rat liver mitochondria	Kamat et al. 2000)
Antioxidant activity measured using the dPPh method	Kongkaneramit et al. 2011
Hydrogen donors, meta ion chelators, reducing agents, radical scavengers and anti-lipid peroxidation	Visavadiya et al. 2009
Gonorrhoea, piles, diabetes, rheumatism, cough, diarrhoea, gastric troubles, headache and for increasing lac- tation	Goyal et al. 2003; Chauhan et al. 2011
Anti-anaphylactic	Padmalatha et al. 2002
Antistress activity	Bhattacharya et al. 2002; Muruganandam et al. 2002
Antiulcer	Datta et al. 2002; Goel&Sairam 2002;

	Sairam et al. 2003
Antidiarrhoeal	Venkatesan et al. 2005),
Radioprotective agent	Arora et al. 2005
Modulation of the system	diwanay et al. 2004; Gautam et al. 2004

Summary and future prospects

The long-established and contemporary information of Aspaaragus established the plant has enormous therapeutic value. Its therapeutic significance has been reported within the Indian and British Pharmacopoeias and within the conventional system of medicines like Ayurveda, Unani and Siddha for the treatment of diseases like menopausal symptoms, neurodegenerative disorders, diarrhoea, lactational failure etc. This plant has revealed vast therapeutic prospective in contemporary pharmacology, like adaptogenic activity, antimicrobial activity, antioxidant activity, antiulcer activity, phytoestrogenic effects, galactogogue effect, neuroprotective effect etc. nevertheless, there's still a necessity to plug gaps among tradition and contemporary pharmacology. The exploitation of this plant is limited gratitude to the uncompleted perceptive and inadequate proof concerning their probable healthiness property. For example, more investigation is requisite to describe the effect of phytoestrogens from this plant. Also, more study are requisite to take benefit of the potential of Satavari within the areas of neurological and psychiatric disorders.
One more significant restriction is that this plant is categorized as scarce in its natural habitat and hence for its prospect application, there's an imperative necessitate for its protection.

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