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PARSIYOSHAN (*ADIANTUM CAPILLUS-VENERIS)*- A REVIEW

Asim Ali Khan[1], Prem Kapoor[2], Shagufta Parveen[3*]

1. Associate Professor, Department of Moalajat, Faculty of Medicine (U), Jamia Hamdard
2. Associate Professor, Department of Medicine, HIMSR, Jamia Hamdard
3. M D Scholar, Department of Moalajat, Faculty of Medicine (U), Jamia Hamdard.

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For Correspondence:

Shagufta Parveen

M D Scholar, Department of Moalajat, Faculty of Medicine (U), Jamia Hamdard

E-mail:

shaguf.parveen@gmail.com

ABSTRACT

Parsiyoshan is being used in Unani system of medicine since ages, and is mentioned in Arabic and Persian literature at several places. The drug is also described by famous Unani scholars in their various popular books namely *Kitaab-al-Mukhtaraat, Al-Qanoon* & *Ghina-mina.* These days, it is a well prescribed Unani medicine, successfully used by Unani physicians for treating various ailments. In this review an effort is made to update the information regarding its medicinal uses and pharmacological activities in traditional or Indian system of medicine and justify its use on modern scientific parameters. The plant description, its chemical constituents and its geographical distribution of across the world have also been included.

INTRODUCTION

Adiantum capillus veneris belonging to the Adiantaceae family is one of the most common and widely distributed species that have found diverse medicinal uses in the indigenous systems of medicine. It is a medicinal, ornamental, delicate graceful fern, small, rhizomatous, erect and perrenial herb up to 30 cm tall with long polished black stripes widely distributed throughout the world. Ethno-medicinally, the genus is important and popularly known as "Hansraj" in Ayurvedic System of Medicine [1,2] The synonyms of the plant include *Adiantum capillus, A. michelii, A. modestum, A. schaffneri*, and *A. tenerum*. Its most common names are avenca and maidenhair fern [3]. Parsiyoshan is popularly known as Hansraj. Its branches are blackish in colour that is why also called as "*kalu hansraj*. Adiantaceae generally occur in the mountainous region of throughout India; in plains they grow on rocks, inhabiting in shady places near swamps and on slopes of lower hills.[4] The plant prefers light (sandy), medium (loamy) and heavy (clay) soils and requires well-drained soil. *Adiantum capillus veneris* Linn. is one of the most common species with potential importance for medicinal and nutritive purpose10. Its beneficial effects are observed against dermatitis, diuretic, cystitis, cold, fever, cough, toothache, dental abscesses, gastritis, as stimulant, emollient, purgative, demulcent, general tonic, hair tonic, respiratory problems, tumours of spleen, liver and other viscera [1]. It has been used in tea for respiratory diseases and as syrup for severe cough. Also, it promotes hair growth and makes the color of hair black.[5]

Scientific classification

Kingdom	:	*Plantae*
Sub-kingdom	:	*Traciobionta*
Division	:	*Pteridophyta*
Class	:	*Filicopsida*
Order	:	*Polypodiales*
Family	:	*Pteridaceae*
Genus	:	*adiantum L.*

Vernacular names

Arabic	:	Shaer-ul-Arz, Khuzbaratul Ber, Shaer-ul-jibat, Shaer-ul-Jinn.
Bengali	:	Gopayelata
English	:	Black Maiden Hair Fern, Venus Hair
Gujarati	:	Kalu Hansraj
Gwalior	:	Hownsraj

Hindi	:	Hansraj, Kalujhap, Kalijhant
Kashmiri	:	Dumtulli
Kumaon	; :	Mubaraka
Latin	:	Adiantum capillus veneris
Marathi	:	Mubaraka
Persian	:	Paresiyan Washan; Sumbul Farsi
Punjab	:	Kohbooti
Sanskrit	: :	Hanspadi
Tamil	:	Mayirsikki
Urdu	:	Mobarkha, Persiaunshan
Unani	:	Barsiaonshan, Khazbaratul Ber(6)

Distribution

It is a native of America, but found throughout the world in moist and shaddy places. (6). Also found chiefly in the Western Himalayas., ascending to an altitude of 2,400m and extending into Manipur. It is common in Punjab, Bihar, Maharashtra and South-India. It grows among rocks and on walls.(7) It is also distributed in Kashmir, Shimla, Nainital, Dulhossie and Mussorie(8). It is rare in Ceylon, but extends to Japan and South Eastern Asia. Through Afghanistan and Baluchistan it finds its way to Arabia, Syria, Siberia, the Central and Southern Europe, South West England and Ireland. It is also met within the Canary Islands and in many parts of the African continent both North and South. It extends from Florida Southward to Venezuela and the Amazon Valley (9)

Description

It is delicate fern which stipes suberect, 10-23 cm long, blackish, glabrous and shinning. Fronds bipinnate having short terminal pinnae and many laterals on each side. Segments cuneate 1.5-2.5 cm wide. Sori borne at the rounded sinuses of crenations. (10). It is described in following manner- Frond 3-4 pinnate, pinnules firm, membranacious- chartaceous, glaborous, rarely subrhomboid – acuminate, striated, the superior margin rounded, finely dentate- serrate, fertile lobes with 2 notches or rarely 3 notches each notch submembranceous , stripes, glossy and glabrous. (11)

In Unani literature it is describes as under-

It is a plant which possess leaves like coriander but are smaller. Its branches are thin and reddish black in colour. It grows in shady and damp areas near the pounds and walls. (12). Several varieties of Parsiyoshan in which two types are commonly seen. One variety possess dark green leaves having appearance of bird's feathers. There is a stalk in between the leaves, branches are soft. There are small black seeds on the leaves which fall down on the soil and propagate to grow into a plant. It is 1-11/2 inch in height. This plant does not bear flower and fruit. Another variety of hansraj have small, delicate and beautiful leaves. It attends the height of 9 inches (13). It is mentioned that the best quality of Parsiyoshan is that which resembles to *Karafas* and its branches are hard. (14,15)

Constituents

It contains 3α, 3α-epoxy filicane, 21 hydroxyadiantone and adiantone. It also contains volatile oil, bitter principle (Capillerin), tanning material, mucin, gallic acid, sugars and heterosides of Kaempferol quercetol and luteolol. Fresh fronds contains astraglin, isoquercitrin, nicotiflorin, Kaempferol-3-glucoronide, rutin and quercitin. (16).

Petroleum ether extract of plant contains adiantone, 21-hydroxyadiantone, a carotenoid- possibly α- carotene monoepoxide, 3-filicene, kaempferol, leucopelargonidine and quercetin glucosides (17,18)

Period of occurrence

Can be found throughout the year in moist and shady places except in very dry conditions.

Preservation and Storage

The herb should be dried in shade under sunlight, fully dried drug should be stored in air tight containers and kept in a dry and cool place. The drug should be consumed within 6-12 months.

Pharmacological actions

Astringent (234,9,10,11,21)

Aromatic (9,11)

Antidote (11,15, 20,21)

Alexipharmic (9)

Antipyretic (6,9, 22)

Aphrodisiac (9,11)

Absorbent (15,20)

Concoctive (23,12, 15,20)

Detergent (12,20, 22)

Demulcent (23,6, 9,10,11,12,19,20)

Deobstruent (234 ,9, 11,15)

Diuretic (23,6, 10,11,12,19,20)

Emmenogogue (234,6, 10,11,12,19,20)

Expectorant (6, 9,10, 11,17,19,22)

Emetic (9,11, 15,21)

Febrifuge (9,10, 21)

Hair tonic (9,10,15)

Hypoglycaemic (16)

Mucilaginous (9)

Purgative (9,11)

Resolvent (23,6,11,12,19)

Tonic (11,17,21)

Temperament

Moatadil (12,15, 20,22)

Dry and Hot (12,15,20)

Taste

Bitter (11)

Tasteless and somehow bitter (15)

Medicinal uses

Since ancient times, Parsiyoshan has been used as a remedy for various diseased condition. It is useful in biliousness, phlegmatic humours, inflammations, diseases of the chest, colds, headache, tumors, ophthalmia and hydrophobia. Oil prepared from it, is applied on piles, tuberculous glands and wounds and also to bring out of a thorn which gets penetrated into the body. The leaves made in to a plaster are applied topically to chronic tumours of various kinds. A vapour bath medicated from the leaves of this fern is regarded as useful in fever. In Chamba, the plant is pounded and applied to bruises. As an ointment it is used for the prevention of hair falling. The ashes of the

plant mixed with olive oil and vinegar are used to make the hairs grow upon the bald patches produced by ring worm of the scalp. The plant is very useful as mild tonic especially during convalescene from fevers (9,11)

The plant is one of the ingredient in Sushruta's Vidaryadi-gana recommended for the treatment of scorpion sting (18). Frond of Parsiyoshan with honey is useful in catarrhal infections. Parsiyoshan boiled with wine is given in case of hard tumours of the spleen, liver and other viscera. (10)

It is also recommended for the treatment of pneumonia, pleurisy, cough cold and coryza. Its oil when applied on hairs, makes them long, strong, healthy and black. Its decoction is useful for expulsion of stones from the kidney and bladder. Rose flower paste with decoction of fresh juice of Parsiyoshan is an anti mark and clear off the skin scars. Its ash mixed with wine or decoction of Parsiyoshan is used as a remedy for dandruff. Its decoction is useful in anuria, dysuria, asthma and jaundice. Extract of Parsiyoshan is used as cardiotonic and cardiac stimulant. Sharbat Parsiyoshan is beneficial for the amenorrhoea, oligomenorrhoea and also the expulsion of placenta. Its juices mixed with sugar is given to children, as antipyretic in fever. It is useful in case of dog bite. It is also used for mouth ulcers and in stomatitis. (23)

Its expressed juice with pepper is a favourite remedy in all kinds of fever. A syrup prepared from the leaves is useful in chronic cough (19)

Pharmacological studies-

1) Wound healing action-

   Study conducted by *Nilforoushzadeh et al* entitled as "The Effects of *Adiantum capillus-veneris* on Wound Healing: An Experimental *In Vitro* Evaluation" showed Angiogenic and protective effects against oxygen free radicals. This suggest that aqueous partition of *A. capillus-veneris* locally for prevention of late-radiation-induced injuries after radiation therapy and healing of external wounds similar to bedsores and burns. [24]

2) Antioxidant property-

   A) *Khodaie et al* determined the phytoconstituents of *A. Capillus-ven*eris volatile oil by GC-Mass and analyzed antioxidant activity by DPPH assay. It was found that antioxidant activity is due to presence of high content of carvone, carvacrol and thymol in this oil which are responsible for radical scavenging activity.(25)

   B) In vitro study showed that *Adiantum capillus veneris* leaves are rich in free radical scavenging molecules like terpenoids, flavonoids, saponins, tannins and reducing sugar.

Study proves the *in vitro* antioxidant potential of *Adiantum capillus veneris* leaves extract and found to be comparable with standard. (26)

3) Anti-microbial and anti-fungal activity-

Phytoconstituent from methanolic extract of *Adiantum capillus veneris* plant showed notable antifungal activities specially against fourteen fungi and yeast during in vitro study conducted by Hussein et al.. These were *Aspergillus niger, Aspergillus terreus, Aspergillus flavus, Aspergillus fumigatus, Candida albicans, Saccharomyces cerevisiae, Fusarium sp., Microsporum canis, Streptococcus faecalis, Mucor sp., Penicillium expansum, Trichoderma viride, Trichoderma horzianum* and *Trichophyton mentagrophytes*. Also these constituents shows anti-microbial activity against various micro-organisms. (27)

4) Anti-diabetic activity-

Vadi Ranjan, Manisha Vats and et al investigate the antidiabetic efficacy of aqueous and methanol extracts of whole plant of *Adiantum capillus veneris* Linn. in streptozotocin induced diabetic rats and concluded that methanol extract at high dose of 400 mg/kg b.wt. and aqueous extract at low dose of 100 mg/kg b.wt. has beneficial effects on blood glucose level. (28)

Dosage

Decoction 5-10 masha (23)

5-7g (12,23)

5-10g (29)

Substitute

Zoofa (*Hyssopus officinalis Linn*) in equal quantity. (7,23)

Banafsha (*Violo odorata Linn*) in equal quantity.

Asl-us-Soos (*Glycyrrhiza glabra Linn*) in half dose. (15,23)

Adverse effect

It affects adversely on spleen.(24,25)

In the form of decoction it could be harmful for the kidney.(24)

Antidote

For adverse effect on spleen-

Banafsha (*Violo odorata Linn*) and Mastagi (*Pistacia lentiscum*).(24,25)

For adverse effect on kidney

Kateera (*Stercula urenus*) (24)

Summary

Parsiyoshan (*Adiantum capillus-veneris*) being a herbal medicine has been studied and tested vigorously for its pharmacological actions of leaves and has been proven for its usage in various systemic diseases. Parsiyoshan (*Adiantum capillus-veneris)* is widely acceptable due to its antibacterial activity, anti-fungal, anti-diabetic activity, , antioxidant activity. This drug is used in traditional System of medicine since long time and reference goes to Hippocrates and Dioscorides.

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