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A Bird View on Miraculous Drug Hamsapadi (Adiantum Lunulatum Burm.)

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ABSTRACT

Background: In today's world, Ayurvedic science has reached global recognition. People widely embrace this life science, and the use of herbal medicines for disease prevention and treatment has been practiced for many years. Hamsapadi, a terrestrial herb scientifically identified as Adiantum lunulatumBurm, is commonly found in tropical areas, thriving in moist locations or along water sourses with low sunlight exposure. It is rarely found as a lithophyte.

Aims and Objectives: This review seeks to present the traditional, concise, and in-depth understanding of the drug Hamsapadi (Adiantum lunulatum Burm.).

Materials and Methods: The available literature on Hamsapadi comes from original Ayurvedic scriptures, classical Ayurvedic texts from different periods, and scientific databases such as Google Scholar, PubMed, etc.

Results and Conclusion: The goal of this paper is to understand the biological and pharmacological activities and effects of this herb by compiling the work of Indian medicine in conjunction with contemporary research.

KEYWORDS: *Ayurveda, Pteridophyte, Hamsapadi, Adiantum lunulatumBurm, Phytochemicals*

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INTRODUCTION

Not only are pteridophytes the oldest plants, but they are also among the vascular cryptogams. but, in terms of biodiversity, are a neglected group of plants. One of the twelve megadiversity centres is India[1]. There are currently 23 species known to exist in India, with the Western Ghats and South India accounting for the highest number of 15 of these. These plants are found growing near water sourses with low sunlight intensity and are naturally found in temperate to tropical climates with an abundance of moisture.

The plant Adiantum has a wide range of pharmacological and therapeutic qualities. Different societies have historically employed all parts of the plant, including the stipes, fronds, and rhizomes, to treat various illnesses[2].

Approximately 1200–1500 medications have been sporadically included in Ayurvedic literature. The first step in doing any study on those medications is to compile all the information that is currently available about the medication in order to understand how it may be used to treat various diseases through various therapeutic adjustments and to avoid repeating previously successful studies. This contributes to the drug's improved therapeutic utility[3]. Therefore, the purpose of the current study was to collect data on the medication Hamsapadi (Adiantum lunulatum Burm.) in order to determine its many therapeutic applications as well as how to utilise it.

Review of Literature

Taxonomical Classification[4]

Taxonomy: *Adiantum lunulatum* Burm. F.

Kingdom: Plantae-Plants
Subkingdom: Viridiplantae-green plant
Superdivision: Embryophyta
Infrakingdom: Stereophyta- land plants
Division: Traacheophyta – Vascular plants
Class: Polypodiopsida-leptosporangiate ferns
Subclass: Polypodiidae
Order: Polipodiales
Family: Pteridaceae-maidenhairferns (Adiantaceae)
Genus: *Adiantum* L maidenhair furn.
Species: *Adiantum lunultum* Burm F.
Subfamily: Adiantoideae
Tribe: Adianteae
Category: Fern, subtropical

Table 1. Showing list of Vernacular names[5]

Language	Vernacular names
English	Maiden hair fern, Walking maiden hair fern.
Hindi	Hansapadi, Banda, Hansaraja, Samalpatti, Hansapagi, Kalijhamp, Kalijhant, Paresiyavasan, Hanspadee.
Bengali	Goyalelata, Kalijhant
Gujarati	Hansapadi,Mubarkha, Mubarkhinipalo, Hansraja.
Kannada	Hamsapadi, Nayalad, Naralad.
Marathi	Ghodkhuri, Hansraj,Hansaraj, Mubarak, Kamsaraj Rajkombada, Rajhans.
Kashmiri	Dumtuli.
Punjabi	Harsraj
Telugu	Nayalod,Hamsapadi
Assami	Sharul Arj, Sharujeena, Parsiyav
Santhal	Dodhali.
Porebunder	Hansraj, Kalohansraj
Philippines	Culantrillo
Unani	Hansraj
Persian	Parsiaoshan
Bangladesh (tribal)	Bandortala
Classical Names	Classical Names Hamsapadi, Hamshahvaya, Triparni, Tripadi, Triparnika

Synonyms:

Table 2. Showing Synonyms according to different Nighantu[6,7,8,9,10,11 & 12]

Sl.no	Synonyms	BP.Ni	Kai.Ni	Ra.Ni	S.N	M.N	D.Ni	N.A
01	Hamsapaadi	+	+	+	+	+	+	+
02	Hamsapadi	+	+	-		+	+	-
03	Kitamata	+	-	-		+	-	-
04	Tripadi	+	+	+	+	+	+	-
05	Padi		+	+			-	-
06	Vishagranthi		+	+	+		+	-
07	Raktapaadi		-	+		+	+	-
08	Madhusrava		+	+	+	+	-	-
09	Kitamari		+	+	+	+	-	-
10	Gruthamanda		+	+	+		+	-
11	Aalaselaka		+	-	-		-	-
12	Prahladini		+	+		+	-	-
13	Hemapadi			+			-	
14	Sheetangi			+			-	
15	Sancharini			+			-	

Table 3 Showing the Classification of Hamsapadi

Sl. No	Name of Samhita	Gana	Varga	Skandha
1	Charaka samhita	Kanthya[13]	Shakavarga[14]	Madhura[15]
2	Sushruta samhita[16]	Vidarigandhadi gana		-
3	Astanga hridaya[17]	Vidarigandhadi gana		-
4	Madanpal Nighantu[10]	-	Abhayadi varga	-
5	Shodala Nighantu[9]	-	Chandanadi varga Laksmanadi varga	-

6	Raja Nighantu[8]	-	Parpatadi varga	-
7	Kaiyadeva Nighantu[7]	-	Aushadhi varga	-
8	Bhavprakasha Nighantu[6]	-	Guduchyadi varga	-
9	Nighantu Adarsha[12]	-	Taladi varga	-
10	Dhanvantari Nighantu[11]		Karaviradi varga	-
10	Priya Nighantu[18]	-	Sharadi varga	-

Botanical Description[2]

Rhizome: Erect to sub-erect, short with entire scales; Stipe (10-15) cm long, naked and polished, scaly at base.

Frond: Caespitose, rooting at apex, simple, unipinnate, (10 - 25 × 3 - 8) cm, pinnae 10-20 on each side, alternate, long stalked, basal ones larger, diminished towards the apex, pinnae sub-orbicular to obliquely oblong-ovate, lower margin entire, upper margin inciso-lobate, veins dichotomously branched, free.

Sori: Crescent-shaped arranging along the edges of pinnae lobes, indusiate.

Fertile period: August through December is a fertile time.

Table.4 Showing the Rasapanchaka of Hamsapadi

Sl. No	Name of Ni	*Rasa*	*Guna*	*Veerya*	*Vipaka*	*Prabhava*
1.	M.N	-	*Guru, Sheeta*	*Sheeta*	-	-
2.	R.N	*Katu*	*Ushna*	*Ushna*	*Katu*	-
3.	K.N	*Madhura, Kashaya*	*Guru*	*Sheeta*	*Madhura*	-
4.	B.N	*Madhura, Kashaya*	*Guru, sheeta*	*Sheeta*	*Madhura*	-
5.	Ni.A	*Katu*	*Guru, Sheeta*	*Sheeta*	*Katu*	-
6.	P.N	*Madhura, Kashaya*	*Guru, Sheeta*	*Sheeta*	*Madhura*	-

Table.5 Showing Doshghnata according different Nighantu

Name of the Nighantu	Vatahara	Pittahara	Kapha hara
D.N	+	+	
R.N	+	+	+
K.N	+	+	-
B.N	+	+	

M.N	+	+	+
Ni.A	+	+	+
P Ni	+	+	

Table.6 Showing Karmas of Hamsapadi according to different authors

Sl. no	*Karma*	C.S	S. S	A.H	M.N	K. N	R. N	D. N	P. N	B. N
1.	*Ropana*	+		+	+	+		+	-	+
2.	*Vishaghna*	+		+	+	+	+	-	+	+
3.	*Stambhana*				+	+		-	+	+
4.	*Bhutagraha*				+	+	+	-	+	+
5.	*Rasayana*						+	-		
6.	*Rakta prasadana*							+		
7.	*Krimighna*					+	+	-		

Table.7 Showing Rogaghnata according to different Nighantu

Roga	M.N	D.N	R.Ni	K.N	B.N	P.N
Atisara	+	-	-	+	+	+
Daha	+	+	-	+	+	+
Visarpa	+	+	-	+	+	+
Lutavisha	+	-	-	+	+	+
Rakta dosha hara	+	+	-	+	+	+
Vrana hara		+	-	+	+	
Apasmara	-	-	+	-	-	-
Bhranti	-	-	+	-	-	-

MATERIALS AND METHODS

The material was gathered by examining many online medical research databases, such as Pubmed, Google Scholar, and others, as well as by reading contemporary and ayurvedic text books written by different authors.

Traditional uses of Adiantum lunulatum Burm in India[19].

People from the area and tribe utilise it to cure a variety of illnesses. mostly used for rabies, blood problems, erysepals, fever, diabetic ulcers, atrophy, emaciation, or cachexia, and muscle soreness. Rhizomes are used to treat fever caused by elephantiasis and stranguary. Fronds are applied to itches after being burnt in oil. Hosagoudar and Henry noted that tribal soliga of the Biligiri Rangana Betta in the Mysore region of Karnataka, India, employ certain plant species as a method of birth control.

Chemical Constituents[5]

Filicenol-B, adiantone, 3β acetoxy-6α- hydroxy-hop-15, 6a-Acetoxy-16b, 22-dihydroxy-3-ketoisohopane, isoquercetin, nortriterpene, adiantone, a triterpene epoxide, adiantone, adiantoxide, Isofernene(8-fernene), 3α, 4α-epoxyfilicane; astragalin, isoquercitrin, nicooiflorin, kaempferol- 3- glucuronide, rutin and Querciturone.

Table.8 Preliminary Phytochemical of Alcoholic and Aqueous Extract of *Adiantum lunulatum Burm*[20]

Sl.no	Phytochemical constituents	Results		
		Methanolic extract	N-Hexane Extract	Water Extract
01	Tannin	+	+	-
02	Flavonoid	+	+	-
03	Steroid	+	+	-
04	Saponin	-	-	+
05	Anthocyanin	+	+	-
06	Coumarin	-	-	-
07	Emodins	-	-	+
08	Phlobatannins	-	+	-
09	Alkaloids	+	+	+
10	Phenols	-	+	-
11	Terpenoid	-	+	-
12	Anthraquinones	+	-	-
13	Glycosides	+	-	-

Pharmacological Activities[5]: Antidysentric, ulcer healing, antidiarrhoeal, antifungal, hypotensive, Antibacterial, abortificient. Antifungal, antibacterial, and contraceptive activities.

Table.9 Showing Important Yogas of Hamsapadi[5]

Sl. no	Types of Dosage form	Name of Formulations
01	*Taila*	*Madhuyastyadi taila*
02	*Vati*	*Manasamitra vataka*
03	*Rasayoga*	*Muktapanchamritarasa, Swarnabhupati, Kalakuta rasa*
04	*Ghritam*	*Vidaryadi Ghritam*
05	*Asava*	*Vidaryasava*

Discussion and Conclusion

Adiantum lunulatum, also known as Hamsapadi, is a Pteridophyte that is less significant economically but has remarkable medicinal properties. During the Samhita period, Hamsapadi is listed under Vidarigandhadi gana in Sushruta Samhita under Kanthya mahakashaya and Madhura skanda in Charaka Samhita. During the Nighantu period, many Nighantu also described the medicinal virtues of Hamsapadi.

The primary mechanisms of action of Ayurvedic medications are their Rasa, Guna, Veerya, Vipaka, and Prabhava, either singly or in combination.

The qualities of Madhura, Kashaya, Tikta rasa, Guru and Snigdha Guna, Sheeta veerya, and Madhura vipaka are all present in Hamsapadi. According to traditional references in Ayurvedic writings, it is having an influence on Vatapitta shamaka, Balya, Shotahara, Dahaghna, Sukrala, and Rakta Pitta shamaka.

For the treatment of Galaganda, Acharya Sushruta has been mentioned in addition to other medications. Owing to its madhuradi gunas, it functions at various Srotas levels.

The phytochemical analysis of various extracts of Hamsapadi (Adiantum lunulatum Burm.) revealed the presence of Alkaloids, Cardiac Glycosides, Flavanoids, Saponin Glycosides, Steroids, Tannins, anthraquinones, and so on, resulting in multiple pharmacologica actions such as Goiterogenic or Antithyroid, antibacterial, Antifungal, and Antidyscenteric.

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