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A Review on *Pushkara Moola (Inula racemosa)* - Its medicinal value in diseases of *Pranavaha Srotas* w.s.r. to *Brihatrayi*

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ABSTRACT

Ayurveda is the oldest system among all life sciences, originated in India thousands of years ago. It is an ancient Indian practice of holistic medical care that centers on the equilibrium of body, mind and soul. *Dosha* (vitiating factors), *Dhatu* (tissue elements) and *Mala* (waste products) are the basic building elements of the body. Their continuous and proper flow in the body requires hollow spaces or channels. These channels are called as '*Srotas*' in *Ayurvedic* classics. Thirteen types of *Srotas* are described in *Charaka Samhita*; *Pranavaha Srotas* is one of them. *Pushkara Moola (Inula racemosa* Hook.f.) is herb used in traditional medicine in India for a long time to cure the ailments of *Pranavaha Srotas Vikara*. According to *Bhava Prakash*, it has the properties of *Katu, Tikta* in *Rasa*, *Ushna* in *Virya* and pacifies the *Vata-Kapha Dosha*. *Acharya Charaka* described it in *Shwasahara* and *Hikkanigrahana Mahakashaya*; *Acharya Sushruta* in *Phala Vagra* and *Acharya Vagbhatta* in *Hidhma Nigrahana*. According to *Charaka Samhita* it is the best *Dravya* of *Hikka, Shwasa, Kasa* and *Parshvashula*. By these properties, it seems to quite naturally antagonize the *Shwasa Roga*, which is *Kapha-Vata* predominant disease. Hence it is needed to evaluate the efficacy of *Pushkara Moola* in *Pranavaha Srotas Vikara*.

Key words: *Pushkara Moola, Inula racemosa, Pranavaha Srotas.*

INTRODUCTION

The term *Srotas* means a channel or path. The organism is group of Channels. *Srotas* transport the metabolic derivatives of the body which are essential constituents. *Srotas* are also defined as the structure through which *Sraavan* (flowing) takes place. Thirteen types of *Srotas* are described in *Charaka Samhita*;

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Pranavaha Srotas is one of them.^[1] The *Srotas* also acts as one of the important factor in *Samprapti* (pathogenesis) of diseases.^[2] *Pranavaha Srotas* is one of the most important systems in the body. *Prana* is said as *Pavana* or *Anila*. *Acharya Chakrapani* has opined as *Pranavaha Srotas* are the channels through which the *Pranavayu* flows. *Moola* refers to the developmental or generative place. Almost all the Ancient authorities opines that the *Moordha* (Head) being the main seat of *Prana*. While there are differences of opinion regarding the roots of *Pranavaha Srotas*. *Acharya Charaka* described *Hridaya* and *Mahasrota* as the root of *Pranavaha Srotas*, while *Acharya Sushruta* as *Hridaya* and *Rasavahini Dhamani* to be the roots of *Pranavaha Srotas*.^[3]

Pushkara Moola is herb used in traditional medicine in India for a long time to cure the ailments of *Pranavaha Srotas Vikara*. According to *Bhava Prakash*,

it has the properties of *Laghu* and *Tikshna Guna*, *Katu* (pungent) and *Tikta* (bitter) in *Rasa*, *Ushna* in *Virya* (potency) and pacifies the *Vata-Kapha Dosha*. It has *Katu Vipaka* (undergoes pungent taste after digestion).^[4] *Acharya Charaka* described it in *Shwasahara* and *Hikkanigrahana Mahakashaya*; *Sushruta* in *Phala Vagra* and *Vagbhatta* in *Hidhma Nigrahana*. According to *Charaka Samhita* it is the best *Dravya* for *Hikka*, *Shwasa*, *Kasa*, *Parshvashula Haranam* i.e. choice of drug in treatment of *Hikka* (hiccup), *Shwasa* (diseases of respiratory system), *Kasa* (cough) and *Parshvashula* (both sided chest pain).^[1]

It is a stout herbaceous alpine perennial, 1.5 m tall, with very large basal leaves and usually terminally borne, yellow flower heads. The plant is distributed in temperate alpine Himalayas at an altitude of 1,500-4,200 from Kashmir to Kumaon, Afghanistan to Central Nepal. It occurs wild among 13 strong alpine scrub vegetation in the cold arid habitat of North-West Himalayas between 2,700-3,500 m in the eastern Laddakh (Leh) region of Kashmir.

The plant is a stout shrub, bearing large leaves arranged in a racemose manner. The stem is grooved and all vegetative parts are scabrid to mentose. Lower leaves are narrowed to a winged leaf stack. Upper leaves are lanceolate and stem clasping. The abaxial laminal face is densely to mentose. Radical leaves are 40 x 20 cm broad and are elliptic lanceolate with long petioles. The cauline leaves are smaller, oblong and semi apexiculate. It also "dies very well" in the fall making a stately specimen with shiny bronze foliage for winter interest. The flowers are large, shady yellow daisies produced in mid to late summer. They are borne on apical spike like cluster. The fruits, slender achenes, 0.4 cm long, bearded with 0.75 cm long pappus hairs. Root stock branched; fresh roots are irregularly fusiform (20-25 x 5 cm). Sometimes a number of roots are found in the collar zone, though usually few occur in each clump. These roots have a dull brownish skin with yellowish colour inside. They possess a sweet and some what camphoraceous odour and have a bitter taste [Chopra et al. 1956a]. It yields large amounts of sesquiterpene lactones,

Alantolactone (ALT) and isoalantolactone (IALT) [Arora et al. 1980]. Dihydroalantolactone, dihydroisoalantolactone, inunolide [Raghavan et al. 1969], dihydroinunolide, neoalantolactone, isoalantolactone [Ravindranath et al. 1978], alloanalantolactone [Prabha and Rastogi 1983], inunal, isoinal [Kalsa et al. 1988], alantodiene and isoalantodiene [Kalsa et al. 1989] are other sesquiterpene lactones isolated from the nonpolar fractions of the root.^[5] The roots are bitter, acrid, thermogenic, aromatic, stimulant, antiseptic, alexipharmic, deodorant, anti-inflammatory, digestive, carminative, expectorant, bronchodilator, diuretic, uterine stimulant, aphrodisiac, febrifuge, tonic.

It is a very useful Ayurvedic herb, used in the treatment of heart diseases and respiratory diseases like asthma, bronchitis, cough etc. They are useful in vitiated conditions of *Kapha* and *Vata*, foul ulcers and wounds. Use of this herb in treatment of asthma like conditions by Ayurvedic practitioners in India prompted us to evaluate the actions of test extracts on various aspects of asthma like broncho constriction, eosinophilia, stress, mast cell degranulation and allergy associated with change in vascular permeability using various in vitro and in vivo animal models.^[6]

The drug, *Pushkaramula (Inula racemosa* Hook.f.) is widely mentioned for the treatment of many diseases in compound form by the classics of *Brihatrayi*. The external and internal administration of the drug is prescribed in the classics as *Kashaya*, *Churna*, *Gutika*, *Ghrita*, *Taila*, *Vasti (Anuvasana and Asthapana)*, *Asava*, *Arishta* and *Varti* etc.

Charaka Samhita (1000 B.C.E - 4th Cent. A.D.)^[1]

Charaka has described *Pushkara Moola* in *Hikkanigrahana Mahakashaya (C. Su 4/30)*, *Shwasahara Mahakashaya (C. Su 4/37)* and *Madhurasandha Dravya (C.Vi 8/143)*. The *Moola* (root) and *Bija* (seed) are taken as *Prayojyanga* (part used) of *Pushkara*. It is also described as best drug for *Hikka*, *Shwasa*, *Kasa* and *Parshvashula (C. Su 25/40)*.^[1]

Table 1: Formulation and Indication of Pushkara Moola as described in Charaka Samhita.

SN	Formulation	Indications/Action	References
1.	Kashaya	Hikkanigrahana	C. Su. 4/30
2.	Kashaya	Shwasahara	C. Su. 4/37
3.	Agrayadravya	Hikka, Kasa, Shwasa, Parshwashula	C. Su. 25/40
4.	Chyavanaprasha	Rasayana	C. Chi. 1/1/62-69
5.	Kashaya	Sannipatajwara	C. Chi. 3/211
6.	Kashaya	Sannipatajwara	C. Chi. 3/213
7.	Ghrita	Jwara	C. Chi. 3/225
8.	Chandanadha Taila	Jwara	C. Chi. 4/258
9.	Aguruvadha Taila	Jwara	C. Chi. 4/267
10.	Hingusouvarchaladha Ghrita	Vata Gukma	C. Chi. 5/69-70
11.	Hingvadhi Churna Gutika	Gulma	C. Chi. 5/79-84
12.	Gutika	Vata Gulma	C. Chi. 5/86
13.	Madhvasava	Kaphapittaja Prameha, Grahnidosh, Kilasa, Kushtha	C. Chi. 6/41-44
14.	Ghrita	Rajayakshma, Jwara, Kasa, Ansa - parshwa - shiroruja	C. Chi. 8/106-110
15.	Duralabhadhya Ghrita	Rajayakshma, Jwara, Kasa	C. Chi. 8/108
16.	Jivantyadi Ghrita	Ekadasharupa of Rajayakshma	C. Chi. 8/111
17.	Mahapancha	Apasmara,	C. Chi.

	gavya Ghrita	Unnamada, Shotha, Udararoga, Gulma, Pandu, Kamala, Halimaka	10/19
18.	Jivantyadi Yavagu	Shotha, Arsha, Atisara	C. Chi. 12/60
19.	Narayana Churna	Udararoga	C. Chi. 13/129
20.	Trayaushanadi Churna	Arsha	C. Chi. 14/63
21.	Pippalyadi Anuvasana Basti	Gudabhrmsa, Shula, Mutrakricchra, Pravahika etc.	C. Chi. 14/131
22.	Marichadha Churna	Grahanidosha	C. Chi. 15/98-109
23.	Hingwadi Yavagu	Hikka, Shwasa	C. Chi. 17/101
24.	Dashamuladi Yavagu	Kasa, Hridagraha, Parshwashula, Hikka, Shwasa	C. Chi. 17/102
25.	Pushkaradi Yavagu	Hikka, Shwasa	C. Chi. 17/104
26.	Shatyadi Churna	Tamaka Shwasa, Hikka	C. Chi. 17/123
27.	Shatyadi Yoga	Hikka, Shwasa	C. Chi. 17/129
28.	Tejovatyadi Ghrita	Hikka, Shwasa, Shotha, Vatajaarsha, Grahani, Hridayaroga	C. Chi. 17/142
29.	Chitrakadi Leha	Kasa, Hrida, Shwasa, Gulma.	C. Chi. 18/53-56
30.	Agastya Haritaki	Kasa, Hrida, Shwasa, Vishamajwara	C. Chi. 18/57-62
31.	Peya	Kati - Hridya - Parshva - Koshtashula, Shwasa, Hikka	C. Chi. 18/77
32.	Poushkaradi Hima	Kaphaja Kasa	C. Chi. 18/111

33.	Dashamuladi Ghrita	Vata - Kaphaja Kasa	C. Chi. 18/123
34.	Dwipanchamuladi Ghrita	Kshayaja Kasa	C. Chi. 18/159
35.	Jivantyadi Leha	Kasa	C. Chi. 18/177
36.	Hingu Dyauttara Churna	Hridaroga, Pliha, Udara, Ajirna, Visuchika	C. Chi. 26/20
37.	Hingu-Uragandhad i Churna	Pliha, Udararoga, Ajirna, Visuchika	C. Chi. 26/22
38.	Haritakyadi Ghrita	Vataja Gulma along with Hrida and Parshwa Shula	C. Chi. 26/83
39.	Pushkaramuladi Kalka	Vataja Hridaroga	C. Chi. 26/84
40.	Pushkaramuladi Kwatha	Vataja Hridaroga	C. Chi. 26/85
41.	Pathyadi Kalka	Hrita-Parshwa-Prishtha-Udara-Yoni Shula	C. Chi. 26/86
42.	Krishnadi Churna	Kaphaja Hridaroga	C. Chi. 26/97
43.	Mahamayura Ghrita	Shiroroga, Punsavana Karma	C. Chi. 26/170
44.	Mahanila Taila	Shiroroga, Palita	C. Chi. 26/272
45.	Chitrakadi Ghrita	Vatavyadhi	C. Chi. 28/122
46.	MulakadhyaTaila	Vatavyadhi	C. Chi. 28/169
47.	Anuvasana Taila	Vraghna, Udavarta, Gulma, Arsha, Pliha, Prameha, Vtarakta, Anaha, Ashmari.	C. Si.4/13-17
48.	Sneha Vasti	Nashta-retasa, Kshatakshina, Vishamajwara, Bandhya,	C. Si. 12/1/19

		Raktajagulma, Rasayana, Valipalita.	
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Sushruta Samhita (1000 B.C.E – 2nd Cent. A.D.)^[2]

In Sushruta Samhita, Pushkaramula is mentioned in Sutrasthana, Chikitsasthana and Uttarantra.

In Sushruta Samhita, Pushkaramula is described in Madhuravarga Dravya (Su. 42/11).

Table 2: Formulation and indication of Pushkaramula as described in Sushruta Samhita.

SN	Formulation	Indications/Actions	References
1.	Churna	Apatantraka	S. Chi. 5/21
2.	Hingvadi Churna / Gutika	Mahavatavyadhi, Kasa, Shwasa, Udararoga, Hridaroga, Aruchi, Parshva-udara-vastishula, Anaha, Mutrakrichchha, Pliha, Arsha, Tuni-Pratituni.	S. Chi. 5/28
3.	Dhanwantara Ghrita	Pramehapidika, Prameha, Shotha, Kushtha, Gulma, Udara, Arsha, Pliha, Vidradhi.	S. Chi. 12/5
4.	Rasayana	Kushtha, Vishamajwara, Apasmara, Unmada, Visha, Bhutagraha, Mahavyadhi.	S. Chi. 28/6
5.	Anuvasana Uttara Vasti Taila	Gulma, Anaha, Agnisanga, Arsha, Grahani, Mutrasanga, Vataroga.	S. Chi.37/7-14
6.	Anuvasana Uttara Vasti Taila	Vataroga, Gradhasi, Khanja, Kubja, Adhyavata, Mutra Roga, Udavarta.	S. Chi. 37/15-18
7.	Anuvasana Uttara Vasti Taila	Pliha, Udavarta, Vatarakta, Gulma, Anaha, Kaphajavikara, Prameha, Sharkara, Arsha.	S. Chi. 37/33-42

8.	<i>Hingusouvar chalahda Ghrita</i>	<i>Shula, Anaha, Vata Gulma.</i>	S. Utt. 42/27-28
9.	<i>Pushkaramu ladi Churna</i>	<i>Gulma</i>	S. Utt. 42/120
10.	<i>Talishadi Ghrita</i>	<i>Shwasa</i>	S. Utt. 51/27-29
11.	<i>Agastya Avaleha</i>	<i>Kasa</i>	S. Utt. 52/42-46
12.	<i>Devadarvya di Kwatha</i>	<i>Udavarta</i>	S. Utt. 55/45

Ashtanga Hridaya (7th Cent. A.D.)^[7]

In *Ashtanga Hridaya*, *Pushkara Moola* has been mentioned in *Chikitsasthana*, *Kalpasthan* and *Uttarasthana*. It is also included in *Madhuragana* (A. H.Su. 10/29) In *Ashtanga Hridaya*, *Pushkaramula* is included in *Hidhma Nigrahana*.

Table 3: Formulation and indication of *Pushkaramula* as described in *Ashtanga Hridaya*.

SN	Preparations	Indications/Actions	References
1.	<i>Kwatha</i>	<i>Kasa, Shwasa, Parshvashula, Vata-kaphaja Jwara</i>	A.H.Chi. 1/66
2.	<i>Dashamula Ghrita</i>	<i>Kasa</i>	A.H.Chi. 3/56
3.	<i>Agastya Haritaki</i>	<i>Kasa</i>	A.H.Chi. 3/127-132
4.	<i>Pushkaradi Yoga</i>	<i>Hridaya Roga</i>	A.H.Chi. 6/31
5.	<i>Pushkaradi Churna</i>	<i>Kaphaja Hridaya Roga</i>	A.H.Chi. 6/52
6.	<i>Ghrita</i>	<i>Pandu, Udara, Gulma, Pliha, Anaha, Ashmari, Mutrakrichchha.</i>	A.H.Chi.8/14 5-148
7.	<i>Hingvadi Churna</i>	<i>Gulma, Kasa, Shwasa.</i>	A.H.Chi.14/3 1-33

8.	<i>Kwatha</i>	<i>Gulma, Koshtadaha, Koshta Ruja.</i>	A.H.Chi. 14/49-50
9.	<i>Anuvasana Basti Taila</i>	<i>Udavarta, Gulma, Arsha, Pliha, Adhyavata, Anaha, Ashmari.</i>	A.H.Ka. 4/62-66
10.	<i>Mahakalyana ka Ghrita</i>	<i>Apasmara</i>	A.H.Utt.7/19 -24
11.	<i>Rasayana Yoga</i>	<i>Medhya, Ayushya.</i>	A.H.Utt.39/80
12.	<i>Agraya Dravya</i>	<i>Parshwashula.</i>	A.H.Utt.40/56

DISCUSSION

Ayurveda, our ancient traditional system of medicine, is very rich in concept of structural, functional and psychological aspect of human being as well as plants, their properties and uses. Among the various *Samhitas*, *Charaka Samhita* and *Sushruta Samhita* are well known to possess many formulations based on plants alone or in combination and salient feature of plants are described.

Pushkara Moola (*Inula racemosa* Hook.f.) is herb used in traditional medicine in India for a long time to cure the ailments of *Pranavaha Srotas Vikara*. In *Vedas*, *Pushkara Moola* is described as '*Pushkara Dravya*'. In *Atharvaveda*, it is described in *Madhura Gandha*.^[8] In *Caraka Samhita*, *Pushkara* and *Paushkara* term are given for *Pushkara Moola*. At many places, it is described by the synonyms *Paushkara*, *Paushkarahva* and *Pushkarakhya*. It is described in *Shwasahara* and *Hikkanigrahana Mahakashaya*. *Pushkara Moola* is used as *Rasayana* (rejuvenating drug) also (e.g. *Chyavanaprasha* and *Droni Praveshika Rasayana*). It is the best dravya as *Hikka*, *Shwasa*, *Kasa*, *Parshvashula Haranama* i.e. beneficial for the disease *Hikka* (hiccough), *Shwasa* (diseases of respiratory system), *Kasa* (cough) and *Parshvasula* (both sided chest pain).^[4] All these are the disorders of *Pranavaha Srotas* in which *Pushkara Moola* is used. In *Ashtanga*

Hridaya, It is described as a drug of choice for the *Parshvashula*.^[7] According to *Bhava Prakash*, *Pushkara Moola* has the properties of *Laghu* and *Tikshna* in *Guna*, *Katu* (pungent) and *Tikta* (bitter) in *Rasa*, *Ushna* (hot) in *Virya* (potency), *Katu* in *Vipaka* (undergoes pungent taste after digestion) and pacifies the *Vata-Kapha Dosha*.^[4] Probable mode of actions of *Pushkara Moola* on the diseases of *Pranavaha Srotas* is because of these properties.

In the formulation of the plant, the root is given in cough, dyspnea, asthma, pleurisy, tuberculosis and chest pain. The aqueous extract of dry or fresh root is given orally in rheumatic pains and liver problems; externally a paste is used for relieving pain. The root (powder) possess anti-anginal, hypolipidemic and hypoglycemic properties. The drug is given singly or in compound formulations for heart diseases; *Pushkara Moola* along with *Commiphora mukul* is used in an indigenous drug, *Pushkara - Guggulu*, which has been found effective in management of ischemic and coronary heart disease; and significant reduction in cholesterol, triglycerides and total lipid levels. It has proved to be an anti-platelet and hypolipidaemic agent both *in vivo* and *in vitro* studies.^[5]

CONCLUSION

The present review of *Pushkara Moola* of *Brihatrayi* can be useful to know about different formulation and their indication in various disorders. It is mainly indicated in the treatment of *Pranavaha Srotas Vikara* (i.e. *Kasa*, *Shwasa*, *Hikka*, *Parshwa Shula*, *Hridaroga* etc.) by all *Samhita* of *Brihatrayi*. Mostly root of *Inula racemosa* is used in the formulation for the treatment of respiratory diseases. In this regards, further studies need to carry out to explore *Pushkara Moola* and *Bija* for its potentials in preventing and treating diseases.

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