

WORLD JOURNAL OF PHARMACEUTICAL RESEARCH

SJIF Impact Factor 8.074

Volume 7, Issue 7, 1670-1685.

Review Article

ISSN 2277-7105

JATAMANSI (NARDOSTACHYA JATAMANSI): A COMPREHENSIVE REVIEW

*1Dr. Ankita Goyal, 2Dr. Sudipt Rath and 3Dr. Sachin Mittal

^{1,3}P.G Scholar, ²Associate Professor

^{1,2}P.G. Dept. of Dravya Guna, NIA, Jaipur, Rajasthan.

³P.G. Dept. of Shalya Tantra, DSRRAU, Jodhpur.

Article Received on 18 February 2018,

Revised on 11 March 2018, Accepted on 01 April 2018,

DOI: 10.20959/wjpr20187-11654

*Corresponding Author Dr. Ankita Goyal

P.G Scholar, P.G. Dept. of Dravya Guna, NIA, Jaipur, Rajasthan.

ABSTRACT

Jatamansi is identified as Nardostachya jatamansi DC. It comes under the family Valerianaceae. It is commonly known as 'Jatamansi' in the Indian system of medicines. It is also known as Spikenard, Indian Nard, Musk root, Nardus root etc. in English and used extensively in the system of Ayurveda to cure many diseases like Apasmara(epilepsy) Unmada. Murchha. Chitodvega, Manasavikara. Vismriti. Mastishkadaurbalya, Shirahshoola. Kampavata, Nidranasha. Agnimandya, Anaha, Udarashoola, Amashayashotha, etc. synonyms, morphology, properties, actions and medicinal uses are

described in Ayurvediya Samhitas as well as Nighantus. It is an established herbal drug used for the management of hypertension, nervine disorders like epilepsy, convulsions, neurosis etc, skin diseases, liver disorders, inflammation, urinary tract disorders. It possesses many pharmacological activities like antiseptic, analgesic, digestive, carminative, laxative, stomachic, liver stimulant, diuretic, emmenagogue, deodorant, vermifuge, expectorant, deobstruent, nervine tonic, intellect promoting, sedative, aphrodisiac, sudorific, trichogenous, antipyretic and tonic. The reviews summarize the literature review, synonyms, properties, actions and uses, phyto constituents and pharmacological activities of Jatamansi (Nardostachya jatamansi) DC.

KEYWORDS: *Jatamansi*, *Nardostachya jatamansi*, *Ayurveda*, *Spikenard*.

INTRODUCTION

The word *Jatamansi* literally means, one which has hairy processes simile to tufts of hair. *Jatamansi* enjoys an important place among medicinal herbs in India since ancient times. Various parts of *Jatamansi* (*Nardostachya jatamansi*) are used for the treatment of numerous disorders. In Purulia (West Bengal), the tribes eat this plant as a vegetable.^[1]

A native of India distributed in alpine Himalayas from Kumaon, Punjab and Himachal Pradesh to covering Arunachal Pradesh, Uttar Pradesh, Sikkim at an altitude of 3000 to 6000 m. The rhizome is reputed to be aromatic, antiseptic, analgesic, digestive, carminative, laxative, stomachic, liver stimulant, diuretic, deodorant, vermifuge, nervine tonic, intellect promoting, sedative, aphrodisiac, sudorific, trichogenous, antipyretic and tonic. It is useful in liver disorders, nervine disorders, hysteria, convulsions, neurosis, cardiac palpitations, hypertension.

The *Nardostachya jatamansi*.has ancient medicinal use in different societies from the times of the B.C. The herbal medicine has evolved and changed through the years. A number of plant products have been identified through phyto-chemistry and the extract of their different plant parts are useful in various diseases without side effects.^[2]

In Ayurveda, this drug is known to be used as *Medhya*, *Bhutaghna*, *Balya*, *Akshepashamana*,(*Anti-convulsent*), *Nidrajanana*(*sedative* This drug has been cited as *Kashaya*(astringent), *Madhura* (sweet) and *Tikta*(bitter) in nature. The main part used it whole plant specifically the mool(rhizome).^[3]

History of any drug gives insight into its morphology, properties and therapeutic or dietary utility as conceived by various authors at different stages of the history. Thus here historical review of *Jatamansi* has been put forward in chronological order.

VEDIC KALA: (2500 B.C. – 600 B.C.)

In Atharva Parishishta (35/1/14 & 35/2/1-7) Mamasi is denoted as sobhagyajanana and vasikarana. Sounaka quoted it as soumanasyajanana (Sou.Athrva.6/102/3).^[4]

SAMHITAKALA: (2000 B.C. - 1300 A.D.)

The *Samhitakala* is the important landmark in the history of *Ayurveda*. In this *kala*, the *Ayurveda* came in the glimpses of the common man. In this period various *Samhitas* and compiled work of various *Acharyas* have been done and kept forward. These are following.

A. Charaka Samhita (1000 - 1500 BC)

Aacharya Charaka has categorized Jatamansiin Sangyasthapana mahakashaya^[5] It is mentioned in Kandughna dravya^[6] and tikta skandha.^[7] It is mentioned in Dhoompaan yoga as ingredient ofHarenukadi dhoomvarti,Manahshiladi dhoom as indicated for Kasa,^[8] and Dhoopan dravya.^[9] It is mentioned in Mamsyadi lepa^[10] i.e. indicated for kustha(skin disorders), Putikadi lepa indicated for Mandal kushtha,^[11] Mahapaishachik ghrita indicated for Unmada^[12], Palankashadi taila indicated for Apasmara^[13], Shaileyadi taila indicated for Vataj sotha,^[14] Hriberadi ghrita indicated for Arsha,^[15] Chandanadi kalkaindicated for chhardi,^[16] Mritasanjeevanoagada indicated for Visha,^[17] Ksharagada indicated for visha and unmade^[18], Mamsyadi yog indicated for visha and shotha,^[19] Trutyadi churna indicated for gulma and ashmari,^[20] Khadiradigutika taila indicated for danta, gala, mukha rogas^[21], Padmakadi vidalaka indicated for pittaj netra rogas^[22], Bala taila indicated for vata vyadhi,^[23] Amritadya taila indicated for vata vyadhi,^[24] Madhuparnaayadi taila Mahapadma taila and Dahanashaka lepa indicated for vatarakta.^[25] Jatamansi is indicated for Vaman karma as ingredient of Madanphala sadhita modaka.^[26]

B. Sushruta Samhita (1000 – 1500 BC)

Acharya sushuruta has categorized Jatamansi in Anjanadi gana and Eladigana. [27] Sushurua included jatamansi into sirahdarnarth dravyas. [28] Acharya Sushuruta has indicated Jatamansi as ingredient of Siddharthkadi ghrita for Ksheerpayi shishu. [29] It is mentiond in Trayodashanga taila indicated for vrana ropan, [30] Taalishadi taila indicated for sadyo vrana, [31] Kushthadi taila indicate for bhagna sandhan [32], Bala taila indicated for Sutika roga, Vatavyadhi. [33] Acharya Sushuruta has indicated jatamansi also as ingredient of diseases of upper clavicle region like Snaihika dhoom for mukhrogas, [34] Tagaradya anjan for netra rogas. [35] According to Achrya Sushuruta jatamansi is also a ingredient of various visha nashak agadas like Rishabha agada, Mahasugandhi agada, Pippalyadi dushivishari agadaindicated for dushi visha [36] and Triphaladi leha indicated for keeta dansha. [37] Acharya sushurta has indicated Jatamansi for manshik rogas (mental disorders) alsolike Kultthadi ghrita for Vatika Apasmara, [38] and Brahmyadi Varti for Unmada. [39] Jatamansi is also a ingredient of Aushdhi dharnarth indicated for Graha roga, [40] Mustadi dhumvarti indicated for vata-kaphaj kasa [41] according to Acharya Sushuruta.

C. Ashtanga Hriday (7th centuary)

Acharya vagbhatt has categorized Jatamansi in Anjanadi gana and Eladigana. [42] Acharya vagbhatt has indicated Jatamansi as ingredient of Kaleeyakadi mukhalepa. [43] Acharya vagbhatt has included jatamansi as ingredient of Dhoompan dravya which isindicated for kasa [44] and Haridradi dhumpan yog which is indicated for Swasa and Hikka. [45] Acharya vagbhatt has indicated jatamansi as ingredient of various yogas like Madhukadi ghrita indicated for arsha, [46] Shaileyadi taila indicated for shotha, [47] Bala taila indicated for vatavyadhi. [48] According to him Jatamansi is also a ingredient of various yogas indicated for Unmada [49] like Karpaasasthyadi dhoop, Mahapaishachik ghrita, Unmadasudani varti. Acharya vagbhatt has indicated jatamansi as a ingredient of various urdhavjatrugata (disease ofupper clavicle region) rogas like Mamsyadi anjan for Timir, [50] Mamsyadi lepa for Pitta-Raktaj Abhishyanda, [51] Khadiradi Gutika for mukharogas [52], Mamsyadi yog for kesh roga (kesya). [53] Acharya vagbhatt has indicated Jatamansi as ingredient of Taalishadi taila which is indicated for Sadhya vrana ropana. [54] He has also indicated Jatamansi as ingredient of various agad yogas like Chandrodaya agada and Dushivishari agada for Dushi visha. [55]

D. Kashyapa Samhita(6th century)

According to *Acharya kasyapa Jatamansi* is ingredient of various yogas which are indicated for various *Graha rogas* like two *Tails* indicated for *Revati graha roga*, *Pittra graham*, *Shaishuka dhoop* indicated for *Graha roga*. [56] *Acharya kasyapa* also indicated *Jatamansi* as a ingredient of *yogas* which are indicated for *Sutika rogas* like *Dharnaartha* use of *Jatamansi*, two *tailas* indicated for *Vataj* and *Kaphaj jwara* of *sutika*. [57] He has also indicated *Jatamansi* as a ingredient of various *tailas* which are indicated for *Sotha*, *Vataj jwara and a kalka* which is indicated for *Vranaropana*. [58]

E. Sharangadhara samhita

Acharya sharangadhara has indicated jatamansi as a ingredient of Lavangadi churna which is indicated for Hridroga and Yakshma. He has also indicated Jatamansi as a ingredient of yogaslike Baladi taila, Prasarini taila, Mashadi taila, Dashamularistha which are indicated for various vata rogas and ingredient of Lepa which is indicated for Vatarakta. He has also indicated Jatamansi as a ingredient of yogas like Chandanadi taila and Dhattur taila which are indiacated for Unmada and Apasmara. He has also indicated Jatamansi as a ingredient of Tailas like Angaaraka taila indicated for Jwara, Shatavari taila indiacated for Vata-Pittaj roga, Marichadi taila indicated for Kushtha, kandu. Sharangahara has

also indicated *Jatamansi* as ingredient of *Dashanga lepa* indicated for *Visarpa*, *sotha*, ^[66] *Mamsyadi yog* indicated asa *Daurgandhyahar yoga*. ^[67]

F. Harita Samhita

Acharya harita has mentioned Jatamansi as a ingredient of various yogas like Chandanadi taila indicate for Apasmara, Kshaya, ^[68] Baladi aushdha taila indicated for Jirna jwara and Apasmara ^[69] Baladi taila Narayan taila, Niruha basti indicated for vatavyadhi, ^[70] Varti prayog indicated for Netra rog ^[71] and Chandra Prabhavati indicated for Mohadi roga. ^[72]

G. Bhela Samhita

Acharya Bhela hasmentioned Jatamansi as a ingredient of many yogas like Mahapaishachik ghrita indicated for Unmada, Apasmara, [73] Pipplyadi taila indicated for Karna roga and Baladi taila indicated for Vatavyadhi. [75]

REFERENCES FROM TEEKAS

A. Chakradatta: Acharya Chakradatta hasmentioned Jatamansi as a ingredient of many yogas like Mahapaishachik ghrita indicated for Unmada and Graha roga, ^[76] Utsadana Yoga for Bahya prayog ^[77] and Palankashadi taila both are indicated for Apasmara, ^[78] Aditya paka guduchi taila indicated for Indralupta, ^[79] Chandanadya taila indicated for Khalitya palitya. ^[80]

REFERENCES FROM NIGHANTUS

Ashtanga Nighantu- (8th century A.D.)

Jatamnasi kept into Anjanadi ganaand its synonyms, doshghnata has been described in this Nighantu.

Dhanvantari nighantu-(10th century A.D.)

Jatamansi kept into Chandanadi vargaand itsproperties, synonyms, indications are mentioned in this Nighantu.

Shodhala Nighantu-(13th century A.D.)

Jatamansi kept into Chandanadi vargaand its properties, synonyms, indications are mentioned in this Nighantu.

Hridayadipak Nighantu- Jatamansi kept into *Doshaghna varga* and its properties, synonyms, indications are mentioned in this *Nighantu*.

Madanpal Nighantu- (14th cent.A.D.)

Jatamansikept into Karpooradi varga and its properties, synonyms, indications are mentioned.

Kaidev Nighantu- (15th cent. A.D)

Its properties, synonyms, indications are mentioned under Aushadhi varga.

Raja Nighantu- (15th cent.A.D.)

Its 22 synonyms, properties and indications are mentioned under *Chandanadi varga*.

Bhavaprakasha Nighantu- (16th cent.A.D.)

Its synonyms, properties and indications are mentioned under Karpooradi varga.

Nighantu Adarsh- Jatamansi kept into *Jatamamsi varga* and its properties, synonyms, indications are mentioned.

Priya Nighantu- Jatamansi kept into *Shatapushpadi varga* and its properties, synonyms, indications are mentioned.

REFERENCES FROM MODERN PERIOD

Dravyaguna vijanam: (**P.V.Sharma 20th cen.A.D.**) This is the most famous book of dravyaguna of 20th century. Systematic description of single drugs covering all the headings is available in volume II. Every aspect of *jatamansi* has been detailed.

AyurvedicPharmacopoeiaofIndia: (20th Cen. A.D.) The description of *jatamansi* is available in the Part-1, Volume-3. We find macroscopic as well as microscopic study of root in A.P.I.

Indian Materia Medica: Volume- 1 (Dr. K.M. Nadkarni -20^{th} Cen. A.D.) Sanskrit name, habitat, parts used, constituents, action, properties and uses are described in detail.

Database on Medicinal Plant: (CCRAS Vol-1: 20th Cen. A.D., page no.360).

CONTROVERSIAL STATUS^[81]

The Nighantu writers described *Bhutakeshi*, *Putanakeshi* and *Jatila* as seperate plants.

Dalhana considered *Bhutakeshi*, *Putanakeshi and Jatila* as separate plants, Dalhana considered *Bhutakeshi* and *Jatila* as *Mamsi*.

Different Varieties

- In Sushruta and vagabhatta described two varieties of *Mamsi* viz. *Jatamamsi* and *Gandhamamsi* (*Jata* and *Bhutakeshi*) *Bhutakeshi* and *Gandhamamsi* is identified with *Selinum tenuirolium* wall.
- In Rajanighntu third variety known as *Akaas mamasi* is described.
- In Nighntu ratnakar three varities known Viz. Sadharana mamasi, Sugandha mamsi, Akaas mamsi are described.

Synonyms of Jatamansi

Jatamansi is having many *paryaya* (synonyms). The synonyms quoted in various lexicons and classics are mentioned in Table 1.

1.जटामांसी –जटा-जटा अस्ति अस्याः | (नि.आ.)

It has hairy processes simile to tufts of hair.

2.जटिला –जटाsस्त्यस्याः। (भा.दी.)

It has hairy processes simile to tufts of hair.

3.तपस्विनी –तापोऽस्त्यस्याः। जटिलत्वात् ।अस्माया इति विनिः। (भा.दी.)तापसिवत् जटाः

सन्त्यस्याः।(नि.आ.)

It will have tufts of hair like rishis.

4.लोमशाः –लोमानि सन्त्यस्याः ।(भा.दी.)

It consists of hairs

5.मांसी - मन्यते ज्ञायते वैधै: मेध्यादिगुण-विशेषयुक्ता, 'मन ज्ञाने' | (नि.आ.)

Physicians prefer use frequently

6. माता – मातेव निद्रापयति | (राज.नि.)

It is a good sedative and hypnotic like mother.

7. नलदा –स्गन्धि, 'णल गन्धे' | (अ.नि.)

The rhizome is highly aromatic.

8. किरातिनी – किरातबहुले पार्वत्यप्रदेशे जाता | (कै.नि.)

Mamsi grows on high altitude.

9. कृष्णजटा - कृष्णवर्णजटायुक्ता | (ध.नि.)

Therhizome with root, useful part, is covered withfibers like hair blakish grey in color.

Table 1: Synonyms in Various Nighantu, total synonym=43.

Synonym	As.Ni	Dh.Ni	Ni.She	H.D.Ni	M.P.Ni	Ke.Ni	Bh.Ni	Rj.Ni	PRM
Jatamansi							+	+	
Jatila	+	+	+	+		+	+	+	+
Jatala								+	
Jatavati								+	
Jata		+	+		+	+		+	
Jati									+
Jatapara				+					
Janani						+		+	
Keshi				+		+			
Keshni								+	
Krishnajata		+	+						
Kravyadi		+	+		+	+		+	
Kiratini						+			+
Taamasi								+	
Tapasvini		+	+			+	+		+
Peshi		+	+			+			+
Pishita		+	+					+	
Pishachika					+				
Pishachi	+					+			
Pishini						+			
Putana		+		+		+			
Putanakeshi					+				
Nalada	+	+	+	+	+	+		+	+
Nalika									+
Bhutakeshi	+				+	+			
Bhutjata						+	+	+	
Mamsi	+	+	+	+	+	+	+	+	+
Mamsini								+	
Mishi		+							
Mata						+		+	
Meshi								+	
Mahishi						+			

Gandhamansi				+	+		
Chakravartini						+	
Lomsha							+
Suloma					+		
Hinsra		+			+		
Shikha				+	+		
Phalini	+						
Kolagirika	+						
Shyama	+						
Kanta	+						
Priyanguka	+						

Rasadigunas (Properties And Actions)

1. Ras Panchak (Ras, Guna, Virya, Vipak, Prabhav)

Ras panchak of *Jatamnasi* according to various nighantus is as below given table.

Rasa panchaka	Dh.Ni.	Ke.Ni.	Bh.Ni.	Rj.Ni.	Ni.Aa	DG.Vi.
Rasa	Madhura, Kashaya	Madhura, Tikta, Kashaya	Tikta, Kashaya, Madhura	Kashaya, Katu	Kashaya, Katu	Tikta, Kashaya, Madhura
Guna	-	-	-	-	-	Laghu, Snigdha
Virya	-	-	Sheeta	Sheeta	Sheeta	Sheeta
Vipaka	-	-	-	-	Katu	Katu
Prabahava	-	-	-	Bhutghna	-	Bhutghna

According to above table *Jatamamasi* is *Tikta*, *Kashaya and madhuara rasa*, *Laghu*, *Snigdha guna*, *Sheeta virya* and *Katu vipaka* pradhan dravya.

2. Doshghnata: Jatamansi is declared to be Tridoshnashaka in most of the texts.

Doshghnata is mentioned according to various nighantusias byelow mentioned table.

Doshghnata	As.Ni.	M.P.Ni.	Ke.Ni.	Bh.Ni.	Ni.Aa.	DG.Vi.
Tridoshghna	+	+	+	+	+	+

3. Karma^[82] –Karma according to various available texts are as given below-

Sheetala, Dahaprashamana, Varnya, Vedanasthapana, Sadnyasthapana, Medhya, Bhutaghna, Balya, Akshepashamana, Nidrajanana, Shamaka, Deepana, Pachana, Yakriduttejaka, Pittasaraka, Anulomana, Shoolaprashamana, Hrid-balya, Raktabharaniyamaka, Vajikara, Artavajanana, Swedajanana, Kushthaghna, Nadibalya, Keshavardhana, Jwaraghna, Udveshthananirodhi, Mootrala, Mridurechana, Soumyanasyajanana, Raktabhisaranottejaka.

4. Therapeuticuses (Rogaghnata)^[83]

Therapeutic uses(Rogaghanata)according to various available texts are as given below.

Sannipatikavikara, Vatavyadhi, Shotha, Shoola, Daha, Visphota, Vranashotha, Varnavikara, Swedadhikya, Sweda-daurgandhya, Apasmara, Apatantraka, Unmada, Murchha, Chitodvega, Manasavikara, Vismriti, Mastishkadaurbalya, Shirahshoola, Kampavata, Nidranasha, Agnimandya, Anaha, Udarashoola, Amashayashotha, Chhardi, Yakritchchhota, Kamala, Hriddrava, Raktabharadhikya, Arsha, Hikka, Kasa, Shwasa, Mootrakrichchhra, Bastishotha, Klaibya, Piditartava, Sadyovrana, Bhagna, Garbhashayashotha, Twagvikara, Vatarakta, Visarpa, Daurbalya, Sannipatika jwara, Raktaprakopa, Bhrama, Dantashoola, Mukharoga, Mukhadaurgandhya, Netraroga, Vishavikara, Ashmari, Kushtha, Bhootabadha.

Taxonomical Classification^[84]

➤ Kingdom : Plantae

Division : TracheopytaClass : Magnoliopsida

Order : Dipsacales

Family : valerianaceae

➤ Genus : Nardostachys

> Species : N.jatamansi

Latin name : Nardostachysjatamansi DC.

Chemical constituents^[85]

Actinidine, carotene, aristolens, calarene, calarenal, elemol, droaristolene, b-udesmol, jatamols A & B, jatamansic acid, jatamansone, nardol, nardostachonol, nardostachone, seychellane, spiro jatamol, valeranal, valeranone, virolin, angelicin, jatamansin, jatamansinol, orosenol etc.

Part used: Rhizome

Doses: Powder 1-3gm.

Pharmacological activities

Anti-epileptic, hypotensive, analgesic, anti-implantation, CNS-depressant, tranquillising, hypothermic, antiemetic antiarrhythmic, antispasmodic, antibacterial, antifungal, anthelmintic, diuretic, antiestrogenic, antimicrobial, anticonvulsant, antiulcerogenic, antianxiety, hepatoprotective, bronchodilatory effect.

Actions and Uses.[86]

The rhizome is bitter, astringent, sweet, acrid, cooling, emollient, aromatic, antiseptic, analgesic, digestive, carminative, laxative, stomachic, liver stimulant. diuretic. emmenagogue, deodorant, vermifuge, expectorant, deobstruent, nervine tonic, intellect promoting, sedative, aphrodisiac, sudorific, trichogenous, antipyretic and tonic. It is useful in burning sensation, hiccough, cough, asthma, bronchitis, cephalalgia, inflammations, bodyache, myalgia, dyspepsia, vomiting, colic, flatulence, liver disorders, nervine disorders, strangury, amenorrhoea, dysmenorrhoea, lumbago. It is also useful in skin diseases, leprosy, erysipelas, epilepsy, insanity, hysteria, convulsions, neurosis, cardiac palpitations, chorea, hypertension, premature grey hair, falling of hair, intermittent fever, general debility, calculus, accidental wounds and eye diseases.

Substitutes and Adulterants^[87]

The roots of *Cymbopogon schoenanthus* Spreng and *Nymphoides macrospermum* L. are used as substitute to Nardus rhizome (root). Rhizome of *Selinum vaginatum* Clarke and *Selinum tenuifolium* Wall. ex Clarke are used as an adulterant.

CONCLUSION

Ayurveda is a library of knowledge which inspires each of us to lead a healthy and quality life. With marked changes in the environmental conditions, the effect on the body are well observed as physic-mental disorders. Looking into these challenges, *Jatamansi* is one of the potent herbal drugs that are being used now a days as single or mixed herbal and herbomineral formulation. The traditional texts gives us the knowledge about it various properties and formulations being used in various conditions like nervine disorders, mental disorders, strangury, hypertension, etc. the modern research has also proved the efficacy of rhizome in not only the said disorders but also as antiseptic, analgesic, digestive, carminative, laxative, stomachic, liver stimulant, diuretic, emmenagogue, deodorant, vermifuge, expectorant.

Various pharmacological activities are shown by different parts of *Punarnava* (*Boerhaavia diffusa* Linn.). In view of the many medicinal uses, more clinical studies are also necessary to investigate other grandness of this plant. So we can say that it has been proved as a magical drug due to its multidirectional work. This review article would help the researchers to get a detailed *Ayurvedic* references about the drug *Punarnava* (spreading hog weed).

REFERENCES

- 1. Rajpoot, Kuldeep, and R. N. Mishra. "Boerhaavia diffusa roots (Punarnava mool)—review as rasayan (rejuvenator/antiaging)." *International Journal of Pharmaceutical and Biomedical Research*, 2011; 2.4: 1451-1460.
- 2. Mahesh, A. R., et al. "Detail study on Boerhavia Diffusa plant for its medicinal importance-a review." *Res J Pharm Sci.*, 2012; 1: 28-36.
- 4. Atharvaveda, 8/7/8.
- 5. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, sutra sthana 4/18.
- 6. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, sutra sthana 5/121.
- 7. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, sharir sthana 8/61.
- 8. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsasthana 7/87.
- 9. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 7/123.
- 10. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 9/45.
- 11. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 10/34.
- 12. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 12/65.
- 13. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 14/231.
- 14. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 20/33.
- 15. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 23/54.
- 16. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 23/102.
- 17. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 23/190.

- 18. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 26/65.
- 19. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthann 26/210.
- 20. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 26/234.
- 21. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 28/153.
- 22. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 28/158.
- 23. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, Chikitsa sthana 29/192,112,131.
- 24. Charaka, Charaka Samhita, Vidyotini Hindi commentary, Chaukhambha Bharti Academy; Varanasi, 2009, kalpa sthana 1/23.
- 25. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, Sutra sthana 19/29.
- 26. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, Sutra sthana 38/24.
- 27. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, Sharira sthana 10/50.
- 28. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012,, Chikitsasthana 2/39.
- 29. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012,, Chikitsa sthana 2/75.
- 30. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, Chikitsa sthana 3/58.
- 31. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, Chikitsa sthana 15/32.
- 32. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, Chikitsa sthana 22/69.
- 33. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, Kalpa sthana.
- 34. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, Kalpa sthana 2/51,5/68,6/15,16.

- 35. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, Kalpa sthana 7/23.
- 36. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012,utara tantra 61/28.
- 37. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, utara tantra 62/31.
- 38. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, utara tantra 36/6.
- 39. Sushruta, Sushruta samhita, Ayurveda Tattva Sandipika Hindi commentary, Chaukhambha Sanskrit sansthan; Varanasi, 2012, utara tantra 52/21.
- 40. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009, sutra sthana 15/14,43.
- 41. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009, sutra sthana 22/21.
- 42. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009. Chikitsa sthana 3/58.
- 43. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009.Chikitsa sthana 4/11.
- 44. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009. Chikitsa sthana 8/131.
- 45. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009. Chikitsa sthana 17/23.
- 46. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009. Chikitsa sthana 21/78.
- 47. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009. Uttara sthana 5/18,6/34,6/38.
- 48. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009. Uttarasthana 13/23.
- 49. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009. Uttara sthana 16/4.
- 50. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009. Uttara sthana 22/92.

- 51. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009. Uttara sthana 24/41.
- 52. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009. Uttara sthana 26/55
- 53. Vag Vagbhata, Astanga hridayam, 'Nirmala' Hindi Commentary, Dr. Brahmanand Tripathi editor; Chaukhamba Sanskrit pratishthan, Delhi, 2009. Uttara sthana 35/25,39.
- **54.** Vriddha Jivaka, Kashyapa samhita, 'Vidhyotini' Hindi Commentary, Pandit Hemraja sharma editor; Chaukhamba Sanskrit sansthan, varanasi, 2013. chikitsa sthana 4/23,77.
- 55. Vriddha Jivaka, Kashyapa samhita, 'Vidhyotini' Hindi Commentary, Pandit Hemraja sharma editor; Chaukhamba Sanskrit sansthan, varanasi, 2013. Khila sthana 11/96,135.
- 56. Vriddha Jivaka, Kashyapa samhita, 'Vidhyotini' Hindi Commentary, Pandit Hemraja sharma editor; Chaukhamba Sanskrit sansthan, varanasi, 2013. Chikitsa sthana 11/17.
- 57. Sharandhara Samhita Jiwanprada Hindi Commentary by Dr. Smt. Shailaja Srivastava, Choukhambha Orientalia, Varanasi. 2015. madhyam khanda 6/68.
- 58. Sharandhara Samhita Jiwanprada Hindi Commentary by Dr. Smt. Shailaja Srivastava, Choukhambha Orientalia, Varanasi. 2015. madhyam khanda 9/116,122,130.
- 59. Sharandhara Samhita Jiwanprada Hindi Commentary by Dr. Smt. Shailaja Srivastava, Choukhambha Orientalia, Varanasi. 2015. uttara khanda 11/60.
- 60. Sharandhara Samhita Jiwanprada Hindi Commentary by Dr. Smt. Shailaja Srivastava, Choukhambha Orientalia, Varanasi. 2015. madhyama khanda 9/189,202.
- 61. Sharandhara Samhita Jiwanprada Hindi Commentary by Dr. Smt. Shailaja Srivastava, Choukhambha Orientalia, Varanasi. 2015. madhyam khanda 9/100.
- 62. Sharandhara Samhita Jiwanprada Hindi Commentary by Dr. Smt. Shailaja Srivastava, Choukhambha Orientalia, Varanasi. 2015. madhyam khanda 9/136.
- 63. Sharandhara Samhita Jiwanprada Hindi Commentary by Dr. Smt. Shailaja Srivastava, Choukhambha Orientalia, Varanasi. 2015. madhyam khanda 9/149.
- 64. Sharandhara Samhita Jiwanprada Hindi Commentary by Dr. Smt. Shailaja Srivastava, Choukhambha Orientalia, Varanasi. 2015. uttara khanda 11/5.
- 65. Sharandhara Samhita Jiwanprada Hindi Commentary by Dr. Smt. Shailaja Srivastava, Choukhambha Orientalia, Varanasi. 2015. uttara khanda 11/118.
- 66. Harita Samhita Hari Hindi Vyakhya, Pt. Hariprasada Tripathi, Chaukhamba Krishnadas Acadamy, Varanasi, 2005; 3/9/98.
- 67. Harita Samhita Hari Hindi Vyakhya, Pt. Hariprasada Tripathi, Chaukhamba Krishnadas Acadamy, Varanasi, 2005. 3/20/81.

- 68. Harita Samhita Hari Hindi Vyakhya, Pt. Hariprasada Tripathi, Chaukhamba Krishnadas Acadamy, Varanasi, 2005; 3/20/94, 3/20/111, 3/21/29.
- 69. Harita Samhita Hari Hindi Vyakhya, Pt. Hariprasada Tripathi, Chaukhamba Krishnadas Acadamy, Varanasi, 2005. 3/45/25.
- 70. Harita Samhita Hari Hindi Vyakhya, Pt. Hariprasada Tripathi, Chaukhamba Krishnadas Acadamy, Varanasi, 2005; 3/55/21.
- 71. Bhel samhita- Chaukhambha Vidhya Bhavan, Varansi, 1959. Butterworth's Medical Dictionary, Ed.1986. chikitsa sthana, 2/35.
- 72. Bhel samhita- Chaukhambha Vidhya Bhavan, Varansi, 1959. Butterworth's Medical Dictionary, Ed.1986. chikitsa sthana, 21/53.
- 73. Bhel samhita- Chaukhambha Vidhya Bhavan, Varansi, 1959. Butterworth's Medical Dictionary, Ed.1986. chikitsa sthana, 24/8.
- 74. Chakradatta of Sri Chakrapanidatta with the "Ratnaprabha", Sanskrit commentary, Chaukhambha Sanskrit Sansthana, Varanasi, 20/34.
- 75. Chakradatta of Sri Chakrapanidatta with the "Ratnaprabha", Sanskrit commentary, Chaukhambha Sanskrit Sansthana, Varanasi, 21/9.
- 76. Chakradatta of Sri Chakrapanidatta with the "Ratnaprabha", Sanskrit commentary, Chaukhambha Sanskrit Sansthana, Varanasi, 21/31.
- 77. Chakradatta of Sri Chakrapanidatta with the "Ratnaprabha", Sanskrit commentary, Chaukhambha Sanskrit Sansthana, Varanasi, 55/110.
- 78. Chakradatta of Sri Chakrapanidatta with the "Ratnaprabha", Sanskrit commentary, Chaukhambha Sanskrit Sansthana, Varanasi, 55/112.
- 79. Shastry J.L.N., Dravyaguna vigyana volume-2, Chaukhambha orientalia Varanasi, edition, 2014; 289.
- 80. Database on medicinal plants used in Ayurveda. CCRAS, 2007; 7.
- 81. Database on medicinal plants used in Ayurveda. CCRAS, 2007; 7.
- 82. WWW.Eco.Org.
- 83. Shastry J.L.N., Dravyaguna vigyana volume-2, Chaukhambha orientalia Varanasi, edition, 2014; 290.
- 84. Database on medicinal plants used in Ayurveda. CCRAS, Volume-7, 2007.
- 85. Database on medicinal plants used in Ayurveda. CCRAS, Volume-7, 2007.