



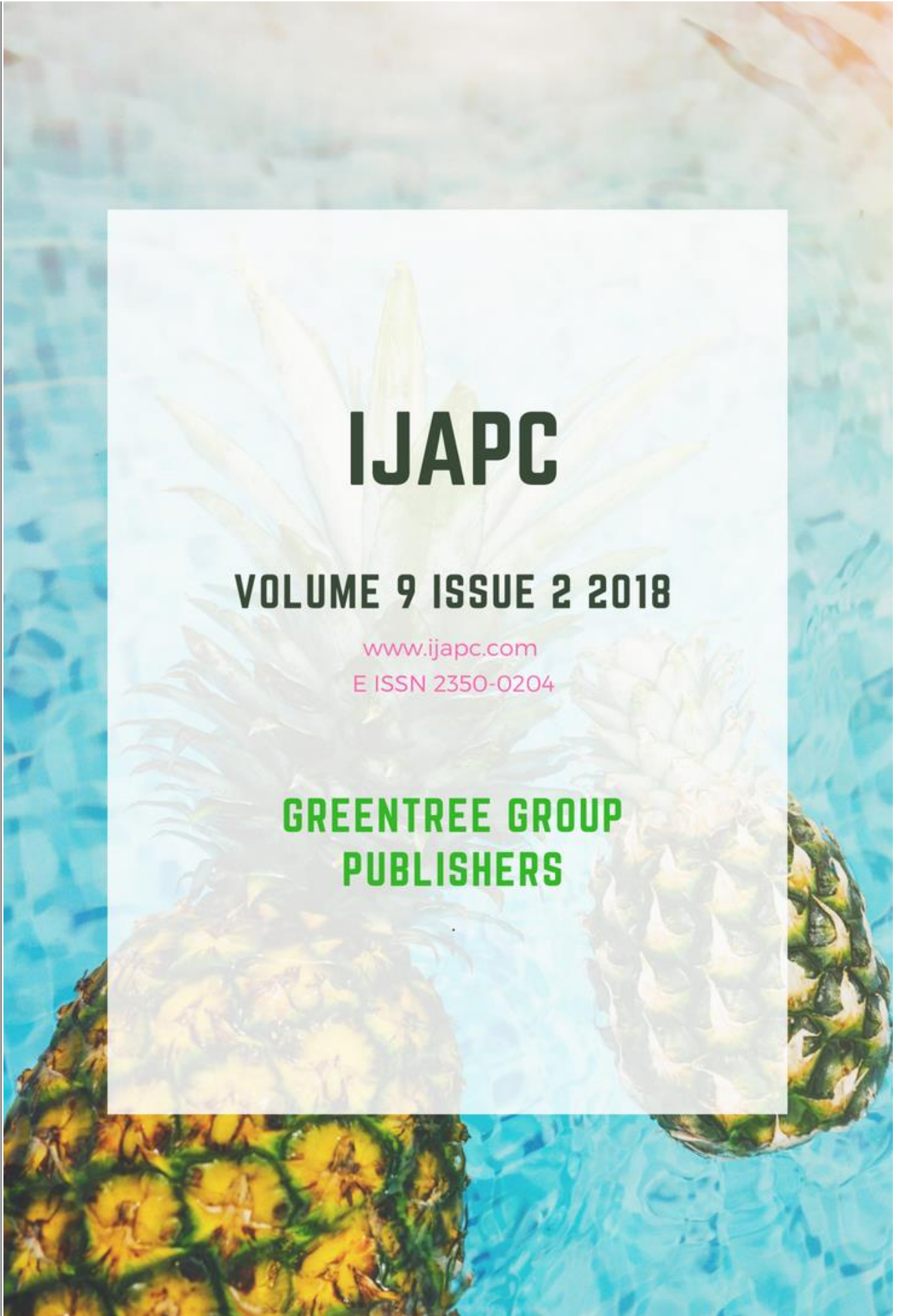
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Madhooka (Madhuca indica J. F. Gmel): An Ayurvedic Review

Manjula^{1*} and Mita Kotecha²

^{1,2}Dept. of Dravyaguna, NIA, Jaipur, Rajasthan, India

ABSTRACT

Madhooka (Madhuca indica J. F. Gmel) commonly known as *Mahua* is widely utilized with its bark, flower and leaves used for medicinal preparations, also having a variety of ethnobotanical uses, used by tribals in *Mahua* production belt of India inclusive of both medicinal and nutritional uses. Vast literature regarding it is available, but its morphology and properties from *Ayurveda* perspective have not been compiled yet. Present paper incorporates complete description in *vedic* literature, *samhita* and *nighantu* in a systemic and structured manner. It was found that *Madhooka* has been given various names viz. *Alpaphala, Dolaphala, Lodhrapushpa, Vanaprastha, Sthiradruma, Koshapushpa, Gudapushpa, Teekshnasara, Madhu, Madhupoorna, Madhupushpa, Mahadruma, Madhudruma, Madhava* whereas *Jala Madhooka* has been mentioned as *Madhoola, Deerghapatraka, Hrasvapushpa, Svaduphala, Gaudiko, Madhoolika, Jalakhyaka, Deerghaputra, Goranga, Patanga, Keereshta* in accordance with its morphology and properties. Most of the texts have quoted *Madhura, Kashaya, Tikta rasa and Sheeta veerya* for *Madhooka* which may be taken as bark while *Madhura rasa and vipaka; Guru, Snigdha, Vikasi guna; Sheeta veerya* have been assigned to *Madhooka pushpa*. Also, *pushpa* has been ascribed as *Teekshna guna* and *Ushna veerya* by *Kaiyadev Nighantu*. *Priya Nighantu* clarified that *Ardra pushpa* is *sheeta veerya* whereas *shushka pushpa* is *ushna veerya*. *Madhooka* is *Pushti- Veerya vardhaka* whereas *Madhooka pushpa* is *Balya, Brimhana, Vrishya*. Concerned drug is having *Vata- pitta nashaka* action. Conclusively, it may be used as a nutritional product or may be used in male impotency, *Vatavyadhi, Krimidosha, Shvasa, Raktapitta* or may be used for regaining strength in various debilitating conditions.

KEYWORDS

Madhooka, Madhuca indica, Mahua, Ayurveda, Guna-karma



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INTRODUCTION

Madhooka (*Madhuca indica* J. F. Gmel), common throughout central India, is a multidimensional drug being used by the local population since long, hence is the subject of interest among the researchers these days. Vast literature regarding it is available, but its *Ayurveda* concepts still remain unexplored. Hence, an effort is made to compile the same. It is a medium sized to large deciduous tree, usually with a short bole and large rounded crown¹. Bark is dark coloured, cracked¹. Leaves are alternate or subopposite, often clustered near ends of branches, elliptic or elliptic-oblong, 7.5-23 cm X 3.8-11.5 cm, entire and undulate, shortly acuminate, coriaceous, pubescent when young, almost glabrous when mature^{1 2}. Flowers are in dense fascicles, terminal or from axils of fallen leaves, many, small, calyx coriaceous; corolla tubular, fleshy, cream coloured, scented, caducous, lobes 7-14 (usually 8-9), ovate lanceolate, short, erect 0.5-2 cm long; stamen 20-30 (usually 24-26), epipetalous and arranged in two series; anther sub- sessile, epipetalous, basifixed, lanceolate, pointed at tip and hairy at the back with prominent dark brown connective strand; taste sweet. The flowers are stalked and drooping^{2 1}.

Fruit is an ovoid berry upto 5 cm long,

greenish turning reddish yellow or orange when ripe¹. Seeds are 1-4, brown, ovoid, ellipsoid, shining, 2.5-3.75 cm long¹. The tree flowers in March- April while fruits in May- June³. Its bark, flowers and fruits are used for medicinal purposes⁴.

Classical Review

Historical Review: Its existence prevails from the times of *Gṛāhyasūtra*: for *Manidharana*, in the name of 'Mandhuka' whose *samidha* is being used for victory in the battle. Also, *Madhooka* word has been possibly used for *Madhumakshika* in *Shankhayana Gṛāhyasūtra*⁵. *Banabhatta* mentions *madhookasava* prepared from flowers while *Kalidasa* mentions garland of *madhooka* flowers⁶.

Samhita and Nighantu Kala: Its description is available in most of the *Samhita* and *Nighantu* with separate discussion on *Madhooka* and *Madhooka Pushpa* where *Madhooka* may be taken as bark of the tree as it is the more used part.

Brihatrayee has mentioned it in *Madhura skandha/ varga* which indicates the predominance of *Madhura rasa* which is responsible for it being highly nutritive. Also, *Raja Nighantu* enumerated it in *Madhura Jeevakadi gana* while *Abhidhana Ratnamala* enumerated it in *Svadu Skandha*. Majority of the texts described it in *Phala/ Amradi/ Amradi phala varga* which may be attributed to its flower being



used as a fruit⁶. Alongwith it, most of the texts enlisted it in *Sarivadi Gana* (*Pipasaghna*, *Raktapittahara*, *Pittajwaraprashaman*, *Dahanashan*)⁷ and

Nyagrodhadi Gana (*Vranya*, *Sangrahi*, *Bhagnasadhaka*, *Raktapittahara*, *Dahamedoghno*, *Yonidoshahrit*)⁸ (Table 1).

Table 1 *Gana/varga* in *Samhita* and *Nighantu*

S.No.	<i>Samhita/ Nighantu</i>	<i>Varga/ Gana</i>
1.	<i>Carak Samhita</i>	<i>Pureeshavirajneeya Mahakashaya</i> ⁹ , <i>Dahaprashaman Mahakashaya</i> ¹⁰ , <i>Madhura Skandha</i> ¹¹ , <i>Phalavarga</i> ¹²
2.	<i>Sushrut Samhita</i>	<i>Sarivadi Gana</i> ¹³ , <i>Nyagrodhadi Gana</i> ¹⁴ , <i>Shirovirecana Dravya</i> ¹⁵ , <i>Madhura Varga</i> ¹⁶ , <i>Phalavarga</i> ¹⁷
3.	<i>Ashtanga Hridaya</i>	<i>Phala Varga</i> ¹⁸ , <i>Madhura Varga</i> ¹⁹ , <i>Nasya Gana</i> ²⁰ , <i>Sarivadi Gana</i> ²¹ , <i>Nyagrodhadi Gana</i> ²² , <i>Drakshadi Gana</i> ²³
4.	<i>Sharangadhara</i>	<i>Nyagrodhadi Gana</i> ²⁴
5.	<i>Saushruta Nighantu</i> ²⁵	<i>Sarivadi Gana</i> , <i>Nyagrodhadi Gana</i>
6.	<i>Ashtanga Nighantu</i> ²⁶	<i>Sarivadi Gana</i> , <i>Nyagrodhadi Gana</i>
7.	<i>Madanadi Nighantu</i> ²⁷	<i>Nyagrodhadi Gana</i>
8.	<i>Dhanvantari Nighantu</i> ²⁸	<i>Amradi Varga</i>
9.	<i>Dravya Guna Sangraha</i> ²⁹	<i>Phala Varga</i>
10.	<i>Nighantu Shesha</i> ³⁰	<i>Vriksha Kanda</i>
11.	<i>Sodhala Nighantu</i> ³¹	<i>Amradi Varga</i>
12.	<i>Madhav Dravyaguna</i> ³²	<i>Phala Varga</i>
13.	<i>Abhidhana Ratnamala</i> ³³	<i>Svadu Skandha</i>
14.	<i>Siddha mantra</i> ³⁴	<i>Vatapittaghna Varga</i>
15.	<i>Hridaya Dipaka Nighantu</i> ³⁵	<i>Ekanama Varga</i>
16.	<i>Madanpala Nighantu</i> ³⁶	<i>Phaladi Varga</i>
17.	<i>Kaiyadeva Nighantu</i> ³⁷	<i>Aushadhi Varga</i>
18.	<i>Sarasvati Nighantu</i> ³⁸	<i>Mahavriksha Varga</i>
19.	<i>Bhavaprakasha Nighantu</i> ³⁹	<i>Amradi Phala Varga</i>
20.	<i>Raja Nighantu</i> ⁴⁰	<i>Amradi Varga Dravya</i> , <i>Madhura Jivakadi gana</i>
21.	<i>Rajavallabha Nighantu</i> ⁴¹	<i>Madhyahnika Pariccheda</i>
22.	<i>Shaligrama Nighantu</i> ⁴²	<i>Phala Varga</i>
23.	<i>Nighantu Adarsha</i> ⁴³	<i>Madhookadi Varga</i>
24.	<i>Priya Nighantu</i> ⁴⁴	<i>Hareetakyadi Varga</i>
25.	<i>Guna Ratnamala</i> ⁴⁵	<i>Amradi Varga</i>

Types: *Caraka* quoted *Madhookapushpi* in *vimana sthana* 8/ 139 which is taken as *Madhooka vriksha vishesha* by the commentators. Due to similarity in properties, some *nighantukara* considered it as a synonym of *Madhooka*. Its two types are mentioned in *Ashtanga nighantu*, *Paryayaratnamala*, *Dhanvantari nighantu*, *Madanapala nighantu*, *Kaiyadeva nighantu*, *Bhavaprakasha nighantu*, *Raja*

nighantu, *Shivakosha* and *Shaligrama nighantu* as well as by *Dalhana*⁴⁶. *Nighantukara* interpreted *Madhookadvayam* as:-

1. *Madhooka (Mahua) (Sthalaja)*
2. *Madhoolaka (Madhookapushpi) (Jalaja)*

Botanically, *Madhooka* is *Madhuca indica* J.F.Gmel. Syn. *M. latifolia* (Roxb.) Macbride, *Bassia latifolia* Roxb.



(Sapotaceae) which is easily available throughout the tropical region of India. *Bhavaprakasha* took *Jala Madhooka* as *Bassia longifolia* Koenig.³⁷ or *Madhuca longifolia* (Koenig.) Mach. which may be justified due to its profound abundance in monsoon forests of Western Ghats from Konkan southwards, usually along the banks of river and streams. Also, *Vaidya Mayarama Uniyala* took *Madhoolaka* as *Cyura* which is botanically *Diploknema butyracea* (Roxb.) H. Lam. Syn. *Bassia butyracea* Roxb., *Madhuca butyracea* (Roxb.) Macb., *Aisandra butyracea* (Roxb.) Baehni (Fam. Sapotaceae) and is

especially found in *Pithauragadha* of *Kumau Mandala*⁴⁷.

Separate detailed discussion of *Madhookapushpi* is not available in the classics as it has properties similar to *Madhooka*. *Jala Madhooka* is described as *Madhura*, *Vrananashana*, *Vrishya*, *Vantihara*, *Sheeta*, *Balakari* and *Rasayana*^{48 49}.

Synonyms: Synonyms are indicative of its physical characters, properties, actions, habitat, therapeutic uses, etc. and thereby significant for botanical identification of plant. Different synonyms have been ascribed to *Madhooka* and *Jala Madhooka* (Table 2 & 3).

Table 2 Synonyms of *Madhooka*^{25, 26, 50, 28, 51, 30, 31, 34, 36, 37, 38, 39, 40, 52, 42}

	<i>Saushruta Nighantu</i>	<i>Ashtanga Nighantu</i>	<i>Paryayaratnamala</i>	<i>Dhanvantari Nighantu</i>	<i>Shabdacandrika</i>	<i>Nighantushesha</i>	<i>Sodhala Nighantu</i>	<i>Siddhamantraprakasha comm.</i>	<i>Madanapala Nighantu</i>	<i>Kaiyadeva Nighantu</i>	<i>Saraswati Nighantu</i>	<i>Bhavaprakasha Nighantu</i>	<i>Raja Nighantu</i>	<i>Shivakosha</i>	<i>Shaligrama Nighantu</i>
<i>Gudapushpa</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Teekshnasara</i>	+	+							+	+	+				+
<i>Madhu</i>	+					+				+				+	+
<i>Alpaphala</i>	+														
<i>Madhupoorna</i>	+														
<i>Madhupushpa</i>	+	+	+			+						+		+	
<i>Mahadruma</i>	+									+					+
<i>Dolaphala</i>		+								+	+				+
<i>Lodhrapushpa</i>		+		+										+	
<i>Vanaprastha</i>		+		+	+		+				+	+	+	+	+
<i>Madhudruma</i>		+	+		+				+					+	
<i>Sthiradruma</i>											+				
<i>Madhuvriksha</i>				+			+						+		+
<i>Madhushtheela</i>				+	+	+	+			+	+	+	+	+	+
<i>Madhusravah</i>				+	+	+	+				+	+	+	+	+
<i>Madhava</i>				+	+	+	+						+		+
<i>Madhushaka</i>					+	+									
<i>Madhuka</i>						+			+	+					



<i>Madhvas̥theela</i>	+			
<i>Madhukashtha</i>	+			
<i>Rodhrapushpa</i>	+	+		+
<i>Koshapushpa</i>	+			
<i>Golaphala</i>	+		+	
<i>Madhupushpa</i>		+		
<i>Madhukoshtha</i>			+	+
<i>Madhukoshthi</i>			+	
<i>Elaphala</i>				+
<i>Madhura</i>				+
<i>Rodhravriksha</i>				+
<i>Vanvasa</i>				+
<i>Svadupushpa</i>				+
<i>Madhookadrum</i>		+		

Table 3 Synonyms of *Jala Madhooka*^{26, 28, 52, 36, 37, 39, 40, 53, 42}

<i>Paryaya</i>	<i>Ashṭanga Nighantu</i>	<i>Dhanvantari Nighantu</i>	<i>Shabdacandrika</i>	<i>Madanapala Nighantu</i>	<i>Kaiyadeva Nighantu</i>	<i>Bhavaprakasha Nighantu</i>	<i>Raja Nighantu</i>	<i>Shivakosha</i>	<i>Shaligrama Nighantu</i>
<i>Madhoola</i>	+				+				
<i>Deerghapatraka</i>		+			+		+	+	+
<i>Hrasvapushpa</i>		+			+				+
<i>Svaduphala</i>		+							+
<i>Gaudiko</i>		+							
<i>Madhoolika</i>		+				+			+
<i>Madhupushpa</i>		+					+		
<i>Jalakhya</i>		+							
<i>Rasapushpa</i>		+							
<i>Deerghaputra</i>		+							
<i>Goranga</i>		+							
<i>Madhupushpika</i>		+							
<i>Hrasvaphala</i>				+	+				+
<i>Madhura</i>				+					
<i>Deerghapushpaka</i>				+					
<i>Gaurashakhi</i>					+				
<i>Niravriksha</i>					+				
<i>Madhuvriksha</i>					+				
<i>Madhusrava</i>					+				
<i>Vanaprastha</i>					+				
<i>Madhus̥theela</i>					+				
<i>Madhoolaka</i>			+					+	
<i>Mangalya</i>							+		
<i>Kshaudrapriya</i>							+		
<i>Patanga</i>							+		
<i>Keerasha</i>							+		
<i>Gairikaksha</i>							+		
<i>Gaulika</i>									+
<i>Girija</i>			+						



Interpretation of Some Synonyms⁵³:

- **Synonyms indicating the habitat of the plants:-***Vaanaprastha*: One which grows wildly.

- **Indicating similarities of morphological characters (Svaroop Bodhaka):-** *Lodhrapushpa*: Flowers are cream coloured like those of *Lodhra*. *Koshapushpa*: Flowers contain cavity within.

Golaphala: Fruits are round.

Dolaaphala: Fruits are hanging on branches.

- **Synonyms indicating the flowering time:-** *Maadhava*: It flowers in *Maadhava* i.e. *Vasanta* OR

Flowers are used for preparation of *madya* which is also known as *madhu*.

4. Indicating pharmacological properties and therapeutic usage (Guna- Karma):-

- *Madhooka*: Flowers are full of sweet juice like honey OR

Sweet juice of petals is used for making alcohol.

- *Gudapushpa*: Flowers are comparable to jaggery in sweetness.
- *Madhukoshtha*: Flowers are full of sweet juice like honey.
- *Madhusravah*: Flowers are full of sweet juice like honey.
- *Madhushtheela*: Flowers are full of sweet juice like honey.
- *Madhudruma*: Flowers are full of sweet juice like honey OR
Flowers are used as basic material for preparing wine.
- *Teekshnasaara*: The kernel of which is sharp and used as errhine.

Rasa Panchaka: Pharmacodynamical properties in *Ayurveda* which decide the drug action. *Rasa panchaka* of *Madhooka* and *Madhooka pushpa* have been mentioned separately in the texts (Table 4 & 5).

Table 4 *Rasa Panchaka* of *Madhooka*^{28, 36, 37, 40, 42, 54}

	RASA			VEERYA
	<i>Madhura</i>	<i>Kashaya</i>	<i>Tikta</i>	<i>Sheeta</i>
<i>Dhanvantari Nighantu</i>	+			+
<i>Madanapala Nighantu</i>		+		
<i>Kaiyadeva Nighantu</i>		+	+	
<i>Raja Nighantu</i>	+			+
<i>Shaligrama Nighantu</i>	+	+	+	+
<i>Shankara Nighantu</i>	+	+	+	+

Table 5 *Rasa Panchaka* of *Madhooka Pushpa*^{17, 18, 28, 29, 31, 32, 36, 37, 39, 40, 42, 55, 44, 45}

	RASA		GUNA			VEERYA		VIPAKA
	<i>Madhura</i>		<i>Guru</i>	<i>Snigdha</i>	<i>Vikasi</i>	<i>Teekshnaa</i>	<i>Sheeta</i>	<i>Ushna</i>
<i>Sushruta Samhita</i>	+		+					
<i>Ashtanga Hridaya</i>	+		+	+			+	+



<i>Priya Nighantu</i>	+	+	+
<i>Pri.Ni. (Shushka pushpa)</i>	+		+ +
<i>Gunaratnamala</i>		+ +	+
API	+		+ +

Also, fresh flowers of *madhooka* devoid of stamens and pollens, cooked with sugar and *ghrita* and spiced with *jeeraka* act as tonic (K.Kt. 8/ 176)⁵⁶. Administration of *Pichumanda beeja* is beneficial in *ajeerna* caused due to *Madhooka sevana*⁵⁷.

In various classical texts, *Madhooka pushpa* is quoted as ***Balya, Balaprada, Balakaram, Brimhana, Dhaturiddhikara, Shukrala, Shukrakrita, Vrishya, Shukrakaram, Tarpana, Hridya*** which are all indicative of its high nutritive value. Also, many

references reported it as ***Ahridya*** which is explicable through the definition of *hridyam* as ‘*hridayaya manase hitam hridyam*’ given by *Gangadhara* and *Yogeendranatha Sena*⁵⁸ according to which ***Ahridya*** here may be taken as one that is not desired by *mana*. *Shivadasa sena* further elaborated it as “*Ahridyamiti madajanakatvat*”⁵⁹.

Rogaghanta: *Rogaghanta* of *Madhooka* and *Madhooka pushpa* have been mentioned separately in the texts (Table 8 & 9).

Table 8 *Rogaghnta of Madhooka*^{12, 28, 36, 37, 40, 42, 55}

	<i>Caraka Samhita</i>	<i>Dhanvantari Nighantu</i>	<i>Madanapala Nighantu</i>	<i>Kaiyadeva Nighantu</i>	<i>Raja Nighantu</i>	<i>Shaligrama Nighantu</i>	<i>Shankara Nighantu</i>
<i>Daha</i>		+			+	+	+
<i>Shrama</i>		+			+	+	+
<i>Vrana</i>			+	+		+	+
<i>Krimidosh</i>						+	+
<i>Jantudoshagham</i>					+		
<i>Raktapitta</i>	+						

Madhooka is also mentioned as a medicine used for the treatment of all major fevers (*jvara*), as described in the *Jvaracikitsa* which forms the first chapter of the Sanskrit work called *Madhavacikitsa*⁶⁰. Snuff and paste of

Madhooka sara impregnated with cow’s urine destroys poison (*G. N. 7/3/8*). Paste of *Madhooka* flowers pounded with milk removes burning sensation, pain, etc. of eczema⁶¹.



Madhooka Pushpa is indicated in *Kshaya*, *Kshata*, *Shrama*, *Vatavyadhi* which is justified as per its *rasapanchaka* and *Balya* and *Brimhana* action.

Dosha Karma: *Dosha Karma* of *Madhooka* and *Madhooka pushpa* have been mentioned separately in the texts (Table 10 & 11).

Table 9 *Rogaghnta of Madhooka Pushpa*^{17, 18, 40, 42, 55, 44, 56}

	<i>Sushrut Samhita</i>	<i>Ashtanga Hridaya</i>	<i>Raja Nighantu</i>	<i>Shaligrama Nighantu</i>	<i>Shankara Nighantu</i>	<i>Priya Nighantu (Shushka Pushpa)</i>	<i>API</i>
<i>Kshaya</i>		+					+
<i>Shrama</i>							+
<i>Kshata</i>		+					+
<i>Daha</i>		+	+	+	+		+
<i>Trishna</i>							+
<i>Shvasa</i>							+
<i>Vatavyadhi</i>						+	
<i>Raktapitta</i>	+	+					

Table 10 *Dosha Karma of Madhooka*^{28, 36, 37, 40, 42, 55}

	<i>Dhanvantari Nighantu</i>	<i>Madanapala Nighantu</i>	<i>Kaiyadeva Nighantu</i>	<i>Raja Nighantu</i>	<i>Shaligrama Nighantu</i>	<i>Shankara Nighantu</i>
<i>Anilapaha</i>			+			
<i>Vatam nashayed</i>					+	+
<i>Vataghna</i>		+				
<i>Vatalam Na Tu</i>	+					
<i>Vatalam</i>				+		
<i>Pittapaham</i>	+			+		
<i>Pittanashaka</i>					+	+
<i>Kaphapaha</i>			+			
<i>Kaphaghna</i>		+				
<i>Kaphakaraka</i>						+
<i>Shleshmala</i>					+	
<i>Doshaghna</i>	+					

Most of the texts have mentioned it as *Vata Pitta shamaka* which may be due to *Madhura*, *Tikta*, *Kashaya rasa* and *Sheeta Veerya*.

Most of the texts have mentioned it as *Vata Pitta nashaka* which may be due to

Madhura rasa- vipaka, *Guru- Snigdha guna* and *Sheeta Veerya*.

CONCLUSION

To summarize, ample literature on *Madhooka* is found. Its properties have



been described in *Brihatrayee* and *laghutrayee*.

Table 11 *Dosha Karma of Madhooka pushpa*^{12, 18, 39, 40, 42, 55, 44, 45, 56}

	<i>Caraka Samhita</i>	<i>Ashtanga Hridaya</i>	<i>Bhavaprakasha Nighantu</i>	<i>Raja Nighantu</i>	<i>Shaligram Nighantu</i>	<i>Shankara Nighantu</i>	<i>Priya Nighantu</i>	<i>Gunaratnamala</i>	API
<i>Vata nashaka</i>			+			+	+		
<i>Vatahara</i>									+
<i>Marut nashana</i>								+	
<i>Marut Pranut</i>					+				
<i>Pittanashaka</i>			+	+		+	+	+	
<i>Pitta Pranut</i>					+				
<i>Vatapitte shasyate</i>	ca	+							
<i>Pittakara</i>									+
<i>Kaphakrit</i>		+							

Most of the *Nighantus* have described it in *Sarivadi Gana*, *Nyagrodhadi Gana*, *Amradi Varga*, *Phala Varga* and *Madhura varga*. *Madhooka pushpa* is quoted as *Balya*, *Balaprada*, *Balakaram*, *Brimhana* in many references which is further substantiated owing to its *Madhura rasa*, *Guru-snigdha guna*, *Sheeta veerya*, *Madhura vipaka*, *Vata Pitta nashaka* properties accepted by majority of the texts and its high nutritive value [with the presence of various sugars, proteins, amino acids, fats, minerals (K, P, Ca, Fe, Mg, Cu, Na, Zn), vitamins (carotene, vit. B₁, vit. B₂, vit. C, niacin, folic acid, nicotinic acid)]⁶²; antioxidant^{63,64}, antimicrobial^{65,66}, hepatoprotective⁶⁷ properties established by modern researches along with its use as an energy supplement by the tribals in *mahua* production belt of India since long⁶⁸.

Also, it is quoted to have diuretic, anthelmintic, aphrodisiac, tonic, nutritive and stimulant properties; being used in coughs, colds, bronchitis and wasting disorders. Honey from flowers is used for eye diseases (~ *netra balya*). Stamens may cause digestive problems, hence should be removed. Research and development should be done to utilize this multidimensional drug which is easily available in abundance and gets wasted due to lack of technology, taking into account the Ayurvedic pharmacodynamical properties of the drug.



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