

### *Shalaparni (Desmodium gangeticum DC.)- A Sarvadoshahara Dravya*

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#### Abstract

*Shalaparni* is a *Sarvadoshahara* drug mentioned in *Charaka Samhita*. Leaves of *Shalaparni* are like *Shala*. *Shalaparni* is having *Madhura* and *Tikta Rasa*, *Guru* and *Snigdha Guna* and *Ushna Veerya*. It is a common species found on lower hills and plains throughout India, ascending to 1500m in the Himalayas. Its useful part is root and whole plant. It acts as *Rasayana*, *Brimhana*, *Vrishya* and useful in *Vishamajwara*, *Prameha*, *Shoola*, *Arsha*. It has having anti-oxidant, cardio-protective, anti-inflammatory, anti-ulcer, antidiabetic, nootropic, anti leishmanial, immunomodulatory activity.

#### Keywords

*Shalaparni, Desmodium gangeticum DC. Aphrodisiac, Cardio-protective, Anti-inflammatory*



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## INTRODUCTION

*Shalaparni* is coated as *Sarvadoṣahara* drug (pacifying all humors) in *Charaka Samhita*<sup>1</sup>. *Shalaparni* has Botanical name as *Desmodium gangeticum* DC. and belongs to Fabaceae family, in Marathi it is called as *Salvan*<sup>2</sup>. *Shalaparni* is prevalent in India and has significant medicinal use as a bitter tonic, febrifuge, digestive, anti-catarhal, anti-emetic, and anti-inflammatory. Moreover, it is extensively used in Ayurveda for amelioration of neurological symptoms<sup>3</sup>. The root of *Desmodium gangeticum* DC. is one of the constituent of famous *Ayurvedic* preparation *Dashamoolakwatha* (decoction of group of

ten roots) which is antipyretic and bitter tonic. It is reported to be beneficial in treatment of typhoid fever, biliousness and also diuretic and aphrodisiac<sup>4</sup>. In Traditional medicine, it is used against Snake bite in India<sup>5</sup>. In *Kaushik sutra* it is described with name there *Anshumai* (*Kaushik sutra* 26/36).

## MATERIALS & METHODS

Ayurvedic literature was collected from all samhitas, commentaries and Nighantus. Modern literature was collected from Modern books, journals and internet. All information was collected, analyzed and interpreted.

## OBSERVATION & RESULTS

**Table 1** Classification

Sr.No	Text	Classification
1.	<i>Charaka samhita</i>	<i>Shothahara Mahakashaya, Balya Mahakashaya, Snehopaga Mahakashaya, Angamardaprashamana Mahakashaya, Madhuraskandha</i>
2.	<i>Sushruta samhita</i>	<i>Vidarigandhadi gana, Laghupanchmool.</i>
3.	<i>Ashtangasangraha</i>	<i>Vayasthapana (Rejuvenator) gana,</i>
4.	<i>Dhanvantari Nighantu</i>	<i>Guduchyadi varga</i>
5.	<i>Shodhala Nighantu</i>	<i>Guduchyadi varga</i>
6.	<i>Madhavadravyaguna</i>	<i>Vividhaushadhi varga</i>
7.	<i>Madanpala Nighantu</i>	<i>Abhayadi varga</i>
8.	<i>Kaiyadeva Nighantu</i>	<i>Aushadhi varga</i>
9.	<i>Bhavaprakasha Nighantu</i>	<i>Guduchyadi varga</i>
10.	<i>Raj Nighantu</i>	<i>Shatavyadi varga</i>
11.	<i>Shaligram Nighantu</i>	<i>Guduchyadi varga</i>
12.	<i>Priya Nighantu</i>	<i>Haritakyadi varga</i>
13.	<i>Nighantu Adarsha</i>	<i>Palashadi varga</i>
14.	<i>Vangasena</i>	<i>Sthiradi gana</i>

15.	<i>Kashyapasamhita</i>	<i>Kshirashodhaka gana</i>
16.	<i>Rasendrasangraha</i>	<i>Gokshuradi gana</i>
17.	<i>Amarakosha</i>	<i>Vanoashadhivarga</i>
18.	<i>Dravyagunahastamalaka</i>	<i>Aparajitadivarga</i>

**Table 2** Synonyms of *Shalaparni* in *Bruhatrayi*

Sr.No	Synonyms	Charaka	Sushruta	Ashtangahridaya
1	<i>Vidarigandha</i>	+	+	+
2	<i>Anshumati</i>	+	+	+
3	<i>Shalaparni</i>	+	+	+
4	<i>Saumya</i>	-	-	-
5	<i>Guha</i>	+	+	+
6	<i>Sthira</i>	+	+	+

+ mentioned, - Not mentioned

**Table 3** Synonyms of *Shalaparni* in various *Nighantu*

Sr. No.	Synonym										
		DN	RN	MD	MN	KN	BP	Sho.N	P.N.	Sha.N	MAN
1	<i>Shalaparni</i>	+	+	-	-	+	+	+	+	-	+
2	<i>Sthira</i>	+	+	+	+	+	+	+	+	+	+
3	<i>Saumya</i>	+	+	-	+	+	+	+	-	+	+
4	<i>Triparni</i>	+	+	-	+	+	+	+	-	+	+
5	<i>Atiguha</i>	+	+	-	+	+	-	+	-	-	-
6	<i>Dhruva</i>	+	+	-	+	+	-	+	-	-	-
7	<i>Vidarigandha</i>	+	+	-	+	+	+	+	+	+	+
8	<i>Anshumati</i>	+	+	-	+	+	+	+	+	+	+
9	<i>Drudhamoola</i>	-	+	-	-	-	-	-	-	-	-
10	<i>Patrika</i>	+	-	-	-	-	-	-	-	-	-
11	<i>Peetani</i>	-	+	-	+	+	-	-	-	-	-
12	<i>Kumuda</i>	-	+	-	-	-	-	+	-	-	-
13	<i>Tanvee</i>	-	+	-	-	-	-	+	-	-	-
14	<i>Shophaghni</i>	-	+	-	-	-	-	+	-	-	-
15	<i>Dirghapatrika</i>	-	+	-	-	-	-	-	-	-	-
16	<i>Guha</i>	-	+	-	-	-	+	-	-	+	+
17	<i>Tripatri</i>	-	-	-	-	+	+	-	-	-	-
19	<i>Mahaklitanika</i>	-	-	-	-	+	-	-	-	-	-
20	<i>Anshuparnika</i>	-	-	-	-	+	-	-	-	-	-
21	<i>Parnini</i>	-	-	-	-	+	-	-	-	-	-

22	<i>Parni</i>	-	-	-	-	+	-	+	-	-	-
23	<i>Dirghamulika</i>	-	-	-	-	+	-	-	-	-	-
24	<i>Pivari</i>	-	-	-	-	-	+	-	-	+	+
25	<i>Dirghangri</i>	-	-	-	-	-	+	-	-	+	+
26	<i>Dirghapatra</i>	-	-	-	-	-	+	-	-	+	+
27	<i>Dirghamūla</i>	+	+	-	+	-	-	+	-	-	-
28	<i>Pittini</i>	-	-	-	-	-	-	+	-	-	-
29	<i>Dirghaparnika</i>	-	-	-	-	-	-	+	-	-	-
30	<i>Shularogahara</i>	-	-	-	-	-	-	+	-	-	-
31	<i>Kitavinashini</i>	-	-	-	-	-	-	+	-	-	-
32	<i>Shaliparni</i>	-	+	-	+	-	-	-	-	+	-
33	<i>Sudala</i>	-	+	-	-	-	-	-	-	-	-
34	<i>Supatrika</i>	-	+	-	-	-	-	-	-	-	-
35	<i>Suparnika</i>	-	+	-	-	-	-	-	-	-	-
36	<i>Vataghni</i>	-	+	-	-	-	-	-	-	-	-
37	<i>Pivini</i>	-	+	-	-	-	-	-	-	-	-
38	<i>Sudha</i>	-	+	-	-	-	-	-	-	-	-
39	<i>Suvarnakarini</i>	-	+	-	-	-	-	-	-	-	-
40	<i>Subhaga</i>	-	+	-	-	-	-	-	-	-	-
41	<i>Devi</i>	-	+	-	-	-	-	-	-	-	-
42	<i>Nishchala</i>	-	+	-	-	-	-	-	-	-	-
43	<i>Brihiparnika</i>	-	+	-	-	-	-	-	-	-	-
44	<i>Sumula</i>	-	+	-	-	-	-	-	-	-	-
45	<i>Surupa</i>	-	+	-	-	-	-	-	-	-	-
46	<i>Supatra</i>	-	+	-	-	-	-	-	-	-	-
47	<i>Shubhapatrika</i>	-	+	-	-	-	-	-	-	-	-
48	<i>Shalidala</i>	-	+	-	-	-	-	-	-	-	-
49	<i>Anshupatrika</i>	+	-	-	-	-	-	-	-	-	-

+ mentioned, - Not mentioned

DN- *Dhanvantarinighantu*, RN- *Raj  
nighantu*, MD- *Madhavdravyaguna*, MN-

*Madanpalnighantu, KN- Kaiyadevnighantu, BP- Bhavaprakashnighantu, Sho.N- Shodhalnighantu, PN- Priyanighantu, Sha.N- Shaligramnighantu, MAN- Mahaaushadhinighantu*

size, *Dirghamula*- root is strong, fibrous and deep, *Vidarigandha*- roots smells sweet as like *Vidari (Purariatubarosa)*, *Vataghni*- it pacifies *Vatadosha*, *Shophaghni*- it is anti-inflammatory, *Dhruva*- it cures different diseases<sup>6</sup>.

### Interpretation of Few Synonyms of *Shalaparni*:

*Shalaparni*- leaves are like *Shala(Shorea robusta)*, *Dirghapatra*- leaves are large is

**Table 4** *Rasapanchaka* (Attributes)

Sr.No.	Attributes		<i>DN</i>	<i>RN</i>	<i>MD</i>	<i>MN</i>	<i>KN</i>	<i>BP</i>	<i>Sho.N</i>	<i>PN</i>	<i>Sha.N</i>	<i>MAN</i>
1	<i>Rasa</i> (Taste)	<i>M</i>	-	-	-	-	+	+	-	-	+	+
		<i>T</i>	+	+	-	-	+	+	-	-	+	+
2	<i>Guna</i> (properties)	<i>G</i>	+	+	-	+	+	+	-	-	-	+
		<i>S</i>	-	-	-	-	-	-	-	-	-	-
3	<i>Veerya</i> (Potency)	<i>U</i>	+	+	-	-	+	-	-	-	-	+
4	<i>Vipaka</i> (Post digestive change)	<i>M</i>	-	-	-	-	-	-	-	-	-	-

*M-Madhura*(sweet), *T- Tikta*(bitter), *G- Guru*(heavy), *S- Snighdha*(unctuousness), *U- Ushna*(hot)

**Table 5** *Doshghnata*(Action on Humurs)

Sr.No	Book	<i>Doshghnata</i>
1	<i>Charakasamhita</i>	<i>Sarvadoshahara</i> (pacifies all humurs)
2	<i>Sushrutasamhita</i>	<i>Vatapittaghna</i> (pacifies <i>Vata</i> and <i>Pitta</i> )
3	<i>Ashtangasangraha</i>	<i>Vatapittaghna</i>
4	<i>DhanvantariNighantu</i>	<i>Vataghni</i> (pacifies <i>Vata</i> )
5	<i>MadhavaDravyaguna</i>	<i>Vataghni</i>
6	<i>MadanpalaNighantu</i>	<i>Tridoshghna</i> (pacifies <i>Vata</i> , <i>Pitta</i> and <i>Kapha</i> )
7	<i>KaiyadevaNighantu</i>	<i>Tridoshghna</i>
8	<i>BhavaprakashaNighantu</i>	<i>Tridoshghna</i>

9	<i>RajNighantu</i>	<i>Vataghni</i>
10	<i>ShaligramNighantu</i>	<i>Tridoshghna</i>
11	<i>PriyaNighantu</i>	<i>Tridoshghna</i>
12	<i>DravyagunaHastamlaka</i>	<i>Tridoshghna</i>

**Table 6** Pharmacological Actions

Sr.No.	Action	DN	Sho.N	MD	MN	KN	BP	RN	Sha.N.	PN	M.A.N.
1	<i>Rasayana</i> (Rejuvenation)	-	-	-	+	+	+	-	-	-	+
2	<i>Bruhana</i> (Weight gain)	-	-	-	+	+	+	-	-	-	+
3	<i>Vrishya</i> (Aphrodisiac)	-	-	-	-	+	-	-	-	-	-

**Table 7** Rogagnata (Diseases specific action)

Sr. No.	Rogagnata	DN	Sho.N	MD	MN	KN	BP	RN	Sha..N.	PN	M.A.N.
1	<i>Vishamajwara</i> (Malarial fever)	+	-	-	-	-	-	+	+	-	-
2	<i>Prameha</i> (Diabetes)	+	-	-	-	+	-	+	-	-	+
3	<i>Arsha</i> (Piles)	+	-	-	-	-	-	+	-	-	+
4	<i>Shopha</i> (Inflamation)	+	+	-	-	-	-	+	-	-	+
5	<i>Santapa</i>	+	-	-	-	-	-	+	-	-	-
6	<i>Shoola</i> (pain)	-	+	-	-	-	-	-	-	-	-
7	<i>Kitanashaka</i>	-	+	-	-	-	-	-	-	-	-
8	<i>Vishaghna</i> (Antidote)	-	-	-	-	+	+	-	+	-	+
9	<i>Krumighna</i> (Antibacterial)	-	-	-	-	+	+	-	+	-	+
10	<i>Kshata</i>	-	-	-	-	-	+	-	+	-	-
11	<i>Kasa</i> (Cough)	-	-	-	-	+	+	-	+	-	+
12	<i>Chardi</i> (Vomitting)	-	-	-	+	+	+	-	+	-	+
13	<i>Jwara</i> (fever)	-	-	-	+	+	+	-	+	-	+

14	<i>Shwasa</i> (Dyspnoea)	-	-	-	+	+	+	-	+	-	+
15	<i>Atisara</i> (diarrhoea)	-	-	-	+	+	+	-	-	-	+
16	<i>Shosha</i> (emaciation)	-	-	-	+	+	+	-	-	-	-
17	<i>Trishna</i> (excessive thrust)	-	-	-	-	-	-	-	-	-	+
18	<i>Hrudroga</i> (heart diseases)	-	-	-	-	-	-	-	-	-	-

#### Action on Dhatu/ Upadhatu / Agni:

*Shalaparni* is having *Madhur aand Tikta Rasa, Guru* and *Snigdha Gunaand Ushna Veerya*. *Tikta rasa* increases *Agni*(digestive fire), *Madhura rasa* increases all *Dhatu*<sup>7</sup>, *Guru* and *Snigdha guna* also increases all *Dhatu*s and *upadhatu*<sup>8</sup>.

#### Action on Mala:

Though *Shalaparni* is having *Madhura, Tikta Rasa* and *Madhura vipaka*. Due to its *Madhura vipaka*, it acts as *Sristavinamootra* (help for easy urination and defecation)<sup>9</sup>.

#### Distribution

Common species found on lower hills and plains throughout India, ascending to 1500m in the Himalayas. It is frequently found in outer Himalaya. Punjab, in forest and west land of Bihar and Orissa, Palghat in M.P., in open and wasteland forests of Rajasthan, forest of Ganjam to Godavari, W. Ghats from south Canara to Travancore and Madras<sup>10</sup>.

**Parts Used:** Root, Whole Plant<sup>11</sup>

#### Chemical Constituents:

Plant: N, N-Dimethyltryptamine, 5-Methoxy-N, N-Dimethyltryptamine, and their Nb-Oxides, Nb-Methyltetrahydroharman, 6-Methoxy-2-Methyl-β-carboliniumderivative, Nb-Methaltetrahydroharman, Hypaphorine, Hordenine, Caudicine, N-Methyl Tyramine, β-Phenylethylamine, Gangeti-(7,12g-Dihydro-13-Methoxy-3,3-Dimethyl-11-13-Methyl 2butenyl)-3h, 7h-Benzofuro[3,2-C]Pyrano [3,2-G]- Benzpyran-10-Ol, Gangetinin, Desmodin, 24-Ethylcholesta-5, 22-Dien-3β - Ol . Fungus-Included Leaflets: IsoflavonoidPhytoalexin-Desmocarpin together with Genistein, 2-Hydroxygenistein, Dalbergioden, Diphysolone and Kievitone. Stem: Flavones Glucoside, 4-5,7-Trihydroxy-8-Prenylflavone-4'-0-Alpha-Lrhamnopyranosyl-(1To6)-Beta-D Glucopyranoside .

Aerial Parts: Twelve Alkaloids of four Structural Types (Carboxylated And Decarboxylated Tryptamine,  $\beta$ -Carbolines and  $\beta$ -Phenylethylamines).

Seeds: 5 Phospholipids<sup>12</sup>

#### Formulation and Preparations:

*Shalparnyadikwath*, *Chyavanprash*,  
*Dashmoolarishta*, *Chitrakaharitaki*,  
*MahanarayanaTaila*,  
*BruhatChagalyadyaghrit*, *DashmoolaTaila*,  
*MushkadyaTaila*,  
*VayucchayasurendraTaila*, *VyaghriTaila*<sup>13</sup>.

## DISCUSSION & CONCLUSION

There is no references mentioned by the name *Shalaparni* in any of the Vedic literatures but *Anshumati* is mention in *Kaushika Sutra* 26/36 which is a synonym of both, *Shalaparni* and *Prishniparni*. In *Samhitakala*, many references of the drug *Shalaparni* were found in *Brihatrayi*, *Laghutrayi* and also *Kashyapa Samhita* and *HaritaSamhita*. In *Charaka Samhita*, *Acharya Charaka* has mentioned the drug *Shalaparni* in *Shothahara*, *Balya*, *Snehopaga* and *Angamardaprashamana mahakashaya*, *Madhura skandha* and also in many formulations (Table 1). In *Sushruta Samhita*, *Acharya Sushruta* has mentioned this drug by the name of *Vidarigandha* and

its synonym *Sthira* and *Saumya*. *Ashtangahridaya* has mentioned this drug by the name *Shalaparni* and its synonym that is *Sthira*, *Saumya* etc (Table 2). In all the *Samhita Grantha*, *Shalaparni* is mentioned in *Chatushparni*, *Laghupancamoola* and *Dashamoola*.

All the *Nighantu* like *DhanvantariNighantu*, *ShodhalaNighantu*, *KaiyadevaNighantu*, *BhavaprakashaNighantu*, *RajaNighantu*, *ShaligramaNighantu*, *PriyaNighantu*, *MahaushadhiNighantu* etc. have described the drug *Shalaparni* with its synonyms, properties, actions, *Doshaghnata*, *Rogaghnata*. In Modern period, mostly all the books and floras have mentioned this drug with botanical name as *Desmodium gangeticum* DC. belongs to *Fabaceae* family, synonyms, vernacular names, habitat, chemical composition, properties, uses, dose and formulations.

The popular system of description in the olden days was to describe a drug through various synonyms which were indicative of its physical characters, properties, actions, habitat, therapeutic uses, specific natural characteristics etc<sup>14</sup>. So the synonyms of the drugs draw much attention in *Dravyagunavigyana* since they serve as a major source of description regarding the



identity of the drugs in *Ayurveda*. There are nearly 49 synonyms mentioned in *Samhita* and *Nighantus* (Table 3). Nearly seven synonyms are mentioned in *Brihatrayi*. Among them some most famous synonyms indicates their Morphological character. The name *Shalaparni* indicates its resemblance with the leaf of *Shala tree*. *Dirghapatra* indicates the elongated or long leaf. *Dridhamoola* indicates that the root of *Shalaparni* is very long. Among them some most famous synonyms indicates their Action. *Vataghni* indicates that it act as *Vataghna*. *Shothaghni* indicates that it act as anti-inflammatory. *Dhruva* indicates that it decreased any *roga* (Table 2).

Regarding attributes of *Shalaparni*, almost all the authors described *Shalaparni* having *Guruguna*, *Tikta*, *Madhura Rasa* and *Ushna Veerya*. Only *ShaligramNighantu* had mention *Madhura Vipaka* while other *Nighantus* have not mentioned any *Vipaka* of *Shalaparni* (Table 4). Regarding *Doshagnata Acharya Charaka* mentioned it as *Sarvadoshahara* while *Acharya Sushruta* and *Acharya Vagbhata* had mention *Vatapittaghna* property. In *Nighantu*, various *Nighantukar* mention different *Doshagnata* as *Dhanvantari Nighantu*, *MadhavaDravyaguna*,

*RajaNighantu* had mention *Vataghna* property. *MadanpalaNighantu*, *KaiyadevaNighantu*, *BhavaprakashaNighantu*, *ShaligramNighantu* have mentioned as *Tridoshaghna*. *Shalaparni* is coated as *Sarvadoshahara dravya* in *CharakaSamhita*(Table 5).

All *Acharyas* mentioned its action as *Rasayana*, *Brimhana*, *Vrishya* (Table 6) and *Rogagnata* as *Vishamajwaraghna*, *Pramehaghna*, *Shoolaghna*, *Arshoghna* (Table 7) etc. Modern researches also prove the various pharmacological actions mentioned in *Ayurveda*. *Desmodium gangeticum* DC. possesses the ability to scavenge the free radicals generated during ischaemia and ischaemia reperfusion thereby preserving the mitochondrial respiratory enzymes that eventually lead to cardioprotection and has potential prophylactic and therapeutic efficacy against *Leishmania* infection<sup>15</sup>. *D. gangeticum* appears to be a promising candidate for improving memory and it would be worthwhile to explore the potential of this plant in the management of dementia and Alzheimer disease<sup>16</sup>. Water decoction of the *Desmodium gangeticum* has Anti-inflammatory and anti-nociceptive activity<sup>17</sup>. Flavonoid fraction of *D.*

gangeticum possesses potent antioxidant activity compared with the alkaloid fraction and also with respect to the standard drug indomethacin, in terms of augmentation of the liver and spleen SOD, CAT and GPX activities, concomitant with a reduction in lipid peroxidation<sup>18</sup>.

Total alcoholic extract of *Desmodium gangeticum* DC. possesses antioxidant activity in arthritic rats. Two potent antioxidant compounds i.e.caffeic acid and chlorogenic acid from this plant is responsible for this activity<sup>19</sup>. The ethyl acetate extract of *Desmodium gangeticum* root protects the myocardium against ischemia-reperfusion-induced damage in rats. The effects of the extract may be related to the inhibition of lipid peroxidation<sup>20</sup>. The *Rhizobium* sp. isolated from the root nodules of *Desmodium gangeticum* DC. produce a high amount of indole acetic acid (IAA) from tryptophan in culture<sup>21</sup>. Anti-ulcer effect of *Desmodium gangeticum* DC.may be due to its cytoprotective effect along with antisecretory activity and could act as a potent therapeutic agent against peptic ulcer disease<sup>22</sup>. Aqueous extract of the *Desmodium gangeticum* DC root in the severity of myocardial infarction shows free radical scavenging activity<sup>23</sup>. Treatment of

diabetic rats with aerial parts of *D. gangeticum* extract (DG, 100 and 250 mg/kg body weight) for 3 weeks showed a significant reduction in blood glucose. *D. gangeticum* extract caused a significant increase in insulin secretion from MIN6 cells grown as mono layers and as pseudo islets, indicating that the antidiabetic activity is a result of increased insulin secretion<sup>24</sup>. It has been extensively used in *Ayurveda* for the amelioration of neurological symptoms. Its extracts employed in mice to evaluate the efficacy in amelioration of AD symptoms via nootropic activity and deterioration of AChE activity yielded considerable outcome<sup>25</sup>. It has potential prophylactic and therapeutic efficacy against Leishmanial infection<sup>26</sup>.Glycolipids and other constituents from *Desmodiumgangeticum*were found to possess significant in vitro antileishmanial and immunomodulatory activities against *Leishmaniadonovani*<sup>27</sup>. It possesses the ability to scavenge the free radicals generated during ischaemia and ischaemia reperfusion and thereby preserves the mitochondrial respiratory enzymes that eventually lead to cardioprotection<sup>28</sup>.*D. gangeticum* extract has potent antioxidant activity<sup>29</sup>. It showed severe anti-writhing

activity in the acetic acid-induced abdominal writhing assay. It exhibits central nervous system depressant activity in the spontaneous motor activity, hole cross, and open field tests and hole board tests<sup>30</sup>.

Hence we can conclude that *Shalaprni* is the very important drug mentioned in Ayurved having anti-oxidant, cardio-protective, anti-inflammatory, anti-ulcer, antidiabetic, nootropic, anti-Laishmanial, immunomodulatory activity. This shows its multidimensional uses in different diseased conditions which prove its *Sarvadoshahara karma*.

## REFERENCES

1. *Charakasamhita*, Acharya Y.T. (Editor) *Sutra Sthana*, 25/40. Chaukhamba Sanskrit Sansthan, Varanasi, Reprint ed.2011;132
2. Pandey G(2004). *Dravyagunavigyana Vol3*, ChaukhambhaKrishnadas Academy, Varanasi; Reprint: 322-26
3. MObulesa&DowlathabadMuralidharRao(2011). Effect of plant extracts on Alzheimers disease: An insight into therapeutic avenues, *J Neurosci Rural Pract.* Jan-Jun; 2(1); 56-61
4. Anonymous(2009). *Rewievs on Indian Medicinal plants*, Vol 9, ICMR, New Delhi;: 315
5. AbhijitDey&JitendraNath De(2012), *Afr J Tradit complement Altern Med.*; 9(1):153-174
6. Sharma P.V. (2015), *Namarupagyanam*, ChaukhmbhaVishvabharati, Varanasi, Reprint,p.181-82
7. Ibid 1, *Sutrasthana* 26/42, p.144
8. *AshtangaHridaya*, Paradakar H.S.(Editor),*Sutrasthana*1/18, ChaukhambhaSurbharatiPrakashan, Varanasi, Reprint Ed.2010; 12
9. Ibid 1, *Sutrasthana* 26/61, p. 146.
10. Anonymous(2005), *Database on Medicinal plants used in Ayurveda Vol 2*, CCRAS, New Delhi, Reprint,p.472-80
11. Ibid 2, p 133
12. Ibid 10,p.472-80
13. Leucas D.S. (2013), *Dravyagunavigyana Vol III*, ChaukhambhaVishwabharati, Varanasi, Reprint,p.111
14. Raja Nighantu, Hindi Commetary*DravyaguṇaPrakashika* by Dr. Indradev, ChaukhambhaKrishnadas Academy, Varanasi, 1st Edi,1982, p.4
15. Rastogi S, Pandey MM, Rawat AK. (2011), *Anethnomedicinal, phytochemical and pharmacological profile of Desmodiumgangeticum (L.) DC. and Desmodiumadscendens (Sw.) DC.* *J Ethnopharmacol.*, Jun 22;136(2):283-96. Epub 2011 Apr 20
16. Joshi H, Parle M( 2006), *Antiamnesic effects of Desmodiumgangeticum in mice*, *YakugakuZasshi.* Sep;126(9):795-804.
17. Rathi A, RaoChV, Ravishankar B, De S, Mehrotra S. (2004), *Anti-inflammatory and anti-nociceptive activity of the water decoction Desmodiumgangeticum*, *J Ethnopharmacol.* Dec;95(2-3):259-63.
18. Govindarajan R, Vijayakumar M, RaoChV, Shirwaikar A, Kumar S, Rawat AK, Pushpangadan P (2007), *Antiinflammatory and antioxidant activities of Desmodiumgangeticum fractions in*

- carrageenan-induced inflamed rats, *Phytother Res.* Oct;21(10):975-9.
19. Govindarajan R, Vijayakumar M, Shirwaikar A, Rawat AK, Mehrotra S, Pushpangadan P. (2006), Antioxidant activity of *Desmodium gangeticum* and its phenolics in arthritic rats., *Acta Pharm. Dec*;56(4):489-96.
20. Gino A Kurian, Srilalitha Suryanarayanan, Archana Raman, and Jose Padikkala (2010), Antioxidant effects of ethyl acetate extract of *Desmodium gangeticum* root on myocardial ischemia reperfusion injury in rat hearts, *Chin Med.* 2010; 5: 3.
21. Bhattacharyya RN, Basu PS. (1997), Bioproduction of indoleacetic acid by a *Rhizobium* sp. from the root nodules of *Desmodium gangeticum* DC., *Acta Microbiol Immunol Hung.*;44(2):109-18.
22. Dharmani P, Mishra PK, Maurya R (2005), Chauhan VS, Palit G. , *Desmodium gangeticum*: a potent anti-ulcer agent, *Indian J Exp Biol.* Jun;43(6):517-21.
23. Kurian GA, Philip S, Varghese T. (2005), Effect of aqueous extract of the *Desmodium gangeticum* DC root in the severity of myocardial infarction, *J Ethnopharmacol.* Mar 21;97(3):457-61
24. Govindarajan R, Asare-Anane H, Persaud S, Jones P, Houghton PJ. (2007), Effect of *Desmodium gangeticum* extract on blood glucose in rats and on insulin secretion in vitro, *Planta Med.* May;73(5):427-32.
25. M Obulesu and Dowlathabad Muralidhara Rao (2011), Effect of plant extracts on Alzheimer's disease: An insight into therapeutic avenues, *J Neurosci Rural Pract.* Jan-Jun; 2(1): 56–61.
26. Singh N, Mishra PK, Kapil A, Arya KR, Maurya R, Dube A. (2005), Efficacy of *Desmodium gangeticum* extract and its fractions against experimental visceral leishmaniasis, *J Ethnopharmacol.* Apr 8;98(1-2):83-8.
27. Mishra PK, Singh N, Ahmad G, Dube A, Maurya R. (2005), Glycolipids and other constituents from *Desmodium gangeticum* with antileishmanial and immunomodulatory activities, *Bioorg Med Chem Lett.* Oct 15;15(20):4543-6.
28. Kurian GA, Yagnesh N, Kishan RS, Paddikkala J. (2008), Methanol extract of *Desmodium gangeticum* roots preserves mitochondrial respiratory enzymes, protecting rat heart against oxidative stress induced by reperfusion injury, *J Pharm Pharmacol.* Apr;60(4):523-30.

29.Govindarajan R, Rastogi S, Vijayakumar M, Shirwaikar A, Rawat AK, Mehrotra S, Pushpangadan P. (2003), Studies on the antioxidant activities of Desmodiumgangeticum, Biol Pharm Bull. Oct;26(10):1424-7.

30.Jabbar S, Khan MT, ChoudhuriMS. (2001),The effects of aqueous extracts of Desmodiumgangeticum DC. (Leguminosae) on the central nervous system, Pharmazie. Jun;56(6):506-8.