

A classical drug review on *vidangadi lauha* w.s.r. To *madhumeha* (diabetes mellitus type - ii)

Dr. Vishvamitra Pandey¹, Dr. Rajesh Kumar Shrivastva²,

^{*1}PG Scholar, ²Professor & Head, Department of Kayachikitsa, S.G.M.P.G. Ayurvedic Medical College & Hospital Saheri, Ghazipur, V. B. S. Purvanchal, University, Jaunpur, Uttar Pradesh, India.

***Address for corresponding Author:**

PG Scholar, Department of Kayachikitsa, S.G.M.P.G. Ayurvedic Medical College & Hospital Saheri, Ghazipur, Pin code: 233302, V. B. S. Purvanchal University, Jaunpur, Uttar Pradesh, India. Pin code: 222001, **Email:** drvmp94@gmail.com

Cite this paper as: Dr. Vishvamitra Pandey, Dr. Rajesh Kumar Shrivastva (2022). A classical drug review on *vidangadi lauha* w.s.r. To *madhumeha* (diabetes mellitus type - ii). *Frontiers in Health Informatics*, Vol.11(2022),608-618

ABSTRACT

Background: Medhumeha is a Santarpanajanya Vyadhi. In India, it is increasing rapidly in the urban population and today become the diabetic capital of the world with approximately 33 million adults with diabetes and is likely this number will increase to 57 million by 2025. Vidangadi Lauha is a formulation consists of herbal drugs as mentioned in Bhaishaja Ratanavali with the applicability in Medumeha (Diabetes mellitus Type - II). **Material and Methods:** Ayurvedic texts, as well as the data bases web-based search engines, journal, were used to search for relevant literature and information. **Result:** Vidangadi Lauha referred in Bhaishaja Ratanavali was reviewed, analysed in detail and showed the dominance of Tikta-Katu-Kashaya Rasa, Laghu-Ruksha Guna, Ushna Virya, Katu Vipaka and Deepan Paachan properties might have corrected Kapha Dushti and removes Medodhatwagnimandya which corrected Medo Dhatu Dushti and having Pramehara property directly acting on etiopathogenesis of Madhumeha. Pharmacological activity like anti-diabetic effect were also reported. **Conclusion:** Scientific validation of Vidangadi Lauha has proved the efficacy in reducing the sugar level could be considered as of possible therapeutic value.

Keywords: Diabetes mellitus Type - II, Madhumeha, Medo Dhatu Dushti, Vidangadi Lauha.

1. INTRODUCTION

Hyperglycemia, hyperlipidemia, hyperaminoacidemia, and hypoinsulinemia are the hallmarks of diabetes mellitus, a systemic metabolic disease that results in a reduction in the amount of insulin secreted by the pancreatic beta cells. Hyperglycemia, hyperlipidemia, hyperaminoacidemia, and hypoinsulinemia are the hallmarks of diabetes mellitus, a systemic metabolic disease that results in a reduction in the amount of insulin secreted by the pancreatic beta cells. The prevalence of diabetes is predicted to rise globally from 4% in 1995 to 5.4% by 2025. This is a growing issue worldwide, particularly in India, where the urban population is growing at a rapid rate, making it the diabetic capital of the world. There are currently about 33 million adults with diabetes in India, and by 2025, that number is probably going to rise to

57 million .

Ninety percent of people with diabetes have type II diabetes, or insulin-independent diabetes, which is more common and can be treated with diet, exercise, and medication. Both of these conditions cause hyperglycemia, which in turn causes the acute signs of diabetes, such as blurred vision, nausea, vomiting, lethargy, irritability, mood swings, and frequent urine production, which results in unusual thirst and increased fluid intake².

In Ayurvedic texts the given characteristic features of Madhumeha shows marked similarity with the syndrome of Type 2 Diabetes. It is Tridoshaja Vyadhi, Acharyas have mainly emphasized on vitiation of Kapha Dosha, Medovridhhi and Medodhatwagnimandhya. According to Charak major causative factor (Nidana) of Madhumeha are Madhura, Amla, Lavana Rasa dominant diet mentioned as ‘Gramya Udaka Aanupa Rasa Payansi Dadhini’ and life style such as ‘Aasya Sukham Swapna Sukham’ are similar to the causes quoted as over eating, eating of large amount of carbohydrates mainly sugar rich substances, dairy products, practicing sedentary life style, overweight in modern medical literature. Sushrata has mentioned Sahaj and Apathya-Nimattaja varieties of Madhumeha. All these factors described in different texts of Ayurveda implies that life style plays important role in progression of Madhumeha.

Vidangadi Lauha is a formulation consists of herbal drugs as mentioned in Bhaishaja Ratanavali . Present review is aimed at gathering the information about the details of the constituents of this formulation along with the applicability of this formulation in Medumeha (Diabetes mellitus Type - I

2. MATERIALS AND METHODS

2.1. Method of review

All the relevant Ayurvedic texts, as well as the data bases Google scholar, PubMed, Medline, AYUSH Research Portal, and Digital Helpline for Ayurveda Research Articles (DHARA), dissertation works from Ayurveda colleges, studies available on Research Gate web-based search engines, journal, were used to search for relevant literature and presented in systematic manner.

2.2. Procurement of Trial Drugs

All the trial drugs i.e. Vidangadi Lauha was identified.

2.3. Preparation of Drugs

All the drugs were prepared as per the method of preparation of Vatikalpna as mentioned in Sharangadhara Samhita in Pharmacy of S.G.M.P.G Ayurvedic Medical College and Hospital Saheri, Ghazipur.

2.4. Materials for Vidangadi Lauha

Description of Ingredients of Vidangadi Lauha, with English / Latin name, Part used and its quantities are as given in Table 1:

Table 1: Ingredients of ‘Vidangadi Lauha’

Sr. No	Name of Drugs	Botanical name/ English Name	Part used	Proportion
1.	<i>Vidanga</i>	<i>Embelia ribes</i> Burm.	Fruit	1 part
2.	<i>Haritaki</i>	<i>Terminalia chebula</i> Retz.	Fruit	1 Part
3.	<i>Bibhitaki</i>	<i>Terminalia belerica</i> Roxb.	Fruit	1 Part
4.	<i>Amalaki</i>	<i>Embelica officinalis</i> Gaertn.	Fruit	1 Part

5.	<i>Musta</i>	<i>Cyperus rotundus</i> Linn.	Rhizome	1 Part
6.	<i>Pippali</i>	<i>Piper longum</i> Linn.	Root	1 Part
7.	<i>Sunthi</i>	<i>Zingiber officinale</i> Roxb.	Rhizome	1 Part
8.	<i>Jiraka</i>	<i>Cuminum cyminum</i> Linn.	Fruit	1 Part
9.	<i>Krishnajiraka</i>	<i>Carum carvi</i> Linn.	Fruit	1 Part
10.	<i>Lauha Bhasma</i>	<i>Ferrum</i>	----	9 Part

3. RESULT

The pharmacological properties of the formulation can be explained on the basis of the individual drug properties as mentioned below:

1. VIDANGA

Latin Name	<i>Embelia ribes</i> Burn.
Family	<i>Myrsinaceae</i>
Synonyms	<i>Vidanga, Chitratanul, Jantunasan, Jantug, Krishnatandula, Vatari.</i>
Vernacular Name	• English Name: Embelia • Hindi Name: Vaividanga
Classical Categorization:	• Charakasamhita: Krumighna, Kusthaghna, Truptighna • Susrutasamhita: Sursadi, Pippalyadi
Part Used	• Fruits
Rasapanchaka	• Rasa: Katu • Guna: Laghu, Ruksha, Tikshna • Virya: Ushna • Vipaka: Katu • Doshaghna: Kapha Vatahara
Karma	• Dipana, Pachana, Krimighna, Anulomana.
Rogaghna	• Krimidanata, Dantashoola, Agnimandhya, Vamana, Udarashoola, Krimi, Gandamala, Mutrakrichaha, Ajirna
Chemical constituents	• The main active component is Embelin [2-5 dihydroxy 3-undecyl-1, 4 benzoquinone] Embelic acid, christembeline, an alkaloid, resinoid, volatile oil, Quercitol & fatty ingredients. Embelin reacts quantitatively with formaldehyde to give vidangin [methylene-bis-2-5-dihydroxy-4-undecyl-3-6-benzoquinones].

2. HARITAKI

Latin Name	<i>Terminalia chebula</i> Retz.
Family	<i>Combretaceae</i>
Synonyms	<i>Abhaya, Kayastha, Shiva, Pathya, Vijaya, Amruta, Shiva, Rohini, Vijaya, Chetaki, Putana, Haimavatya, Shreyasi, Jivanti.</i>
Vernacular Name	• English Name: Myrobalan • Hindi Name: Harad

Classical Categorization:	• Charakasamhita: Jwavarghna Mahakashaya, Prajasthapana Mahakashaya, Kusthaghna Mahakashaya, Kasaghna Mahakashaya, Arshoghna Mahakashaya • Susrutasamhita: Triphala Gana, Amalakyadi Gana, Parusakadi Gana, Trivrutadi Gana
Part Used	• Fruits
Rasapanchaka	• Rasa: Kashaya, Katu, Tikta, Amala, Madhura • Guna: Laghu, Ruksha • Virya: Ushna • Vipaka: Madhura • Doshaghnata: Tridosahara
Karma	• Vedanasthapana, Rasayana, Vranashodhana, Vranaropana, Brimhaniya, Dipana, Pachana, Medhya, Krimighna, Kushthaghna, Chakshushya, Anulomana. • Externally: Vraṇashodhana-Ropaṇa, Vedanasthapana, Shothahara. • Internally: Buddhi-Indriya Balya, Dipana, Srotoshodhana, Yakrututtejaka, Shothahara, Shonitasthapana, Anulomana, Krumighna, Mṛudurechana, Rasayana, Vrushya, etc. • Haritaki has been considered as Pathya (wholesome to everyone). Its actions are Ayushya, Varnya, Vayahstapani, Paushtika and Medhya etc.
Rogaghnata	• Vibandha, Aruchi, Udavarta, Gulma, Udararoga, Arsha, Pandu, Shotha, Jirnajwara, Vishamajwara, Prameha, Shiroroga, Kasa, Tamakashwasaⁱ
Chemical constituents	• Tannic acid, chebulinic acid, glycoside, anthraquinones, Chebulegic acid, Tercnebin, Vutamin C, Benzoic, srearic acid (flower), malic acid (leaves) and polyphenolic compoundsⁱⁱ.

3. BIBHITAKI

Latin Name	<i>Terminalia belerica</i> Roxb.
Family	Combretaceae
Synonyms	Aksha, Karshaphala, Karshaphala, Bhutavasa, kalidruma, Karnaphala.
Vernacular Name	• English Name: Beleric Myrobalan • Hindi Name: Baheda, Finasa, Bahera
Classical Categorization:	• Charakasamhita: Jvarahara Mahakashaya, Virechanopaga Mahakashaya • Sushrutasamhita: Triphala Gana, Mustadi Gana • Vagbhata: Mustadi.
Part Used	• Fruit rind, Seed, seed kernal

Rasapanchaka	• Rasa: Kashaya • Guna: Ruksha, Laghu • Virya: Usana • Vipaka: Madhura • Doshakarma: Kaphahara, Tridoshaghna
Karma	• Kaphapittajita, Bhedaka, Kruminasana, Chakshusya, Keshya, Kasaharaⁱⁱⁱ • Externally: Shothahara, Vedanasthapana, Raktastabhana • Internally: It is useful in Kasa, Krimi. Fruits are useful in Bronchitis, sore throat, inflammation, Asthma, etc. The bark is useful in Anaemia and leucoderma.
Rogaghnata	• Svarabheda, Netraroga, Kasa, Pittajvara, Mamsa-Medo-Dosha, Chhardi, Krumiroga, Vibandha^{iv}.
Chemical constituents	• Gallic acid, tannic acid, ellagic acid, fructose, galactose, mannitol, bellericanin and glycosides^v.

4. AMALAKI

Latin Name	<i>Emblica officinalis</i> Gaertn.
Family	Euphorbiaceae.
Synonyms	<i>Vayastha, Vrushya, Jatiphalarasa, Shiv, Dhatriphala, Shreephala, Amrutaphala</i>
Vernacular Name	• English Name: Indian Gooseberry • Hindi Name: Amla, Aonla
Classical Categorization:	• Charak: Jvaraghna, kasaghna, Virechnopaga, Kusthaghna, Vayasthapana. • Shushruta: Amalakyadi, Parushkadi, Triphala. • Vagbhata: Parushakadi.
Part Used	• Root, Bark, Leaf, Fruit, Seed.
Rasapanchaka	• Rasa: Amlapradhana, Pancharasa (Lavanavarjita) • Guna: Laghu, Sara, Mrudu, Ruksha • Virya: Sheeta • Vipaka: Madhura • Doshakarma: Tridoshashamaka
Karma	• Chedana, Upasho-shana, Kledashodhana, Vrishya, Rasayana, Medhya
Rogaghnata	• Prameha, Jwara, Adhmana, Shosha, Trushna, Raktapitta, Amlapitta, Daha.^{vi}
Chemical constituents	• Its fruit contains vit C, phyllembin, linolic acid, indole acetic acid, terchebin, corilagin, ellagic acid and phyllembic acid. • In root, ellagic acid, lupeol, and oleanolic aldehyde are present.

	• Bark - leucodelphinidin, procyanidin, tannin etc. • Ascorbic acid and gallotannins^{vii}.
Actions & Uses	• The fruits are astringent, cooling, anodyne, carminative, digestive, laxative and tonic. • Useful in dyspepsia, colic, flatulence, hyperacidity, peptic ulcer, headache, anaemia.

5. MUSTA

Latin Name	<i>Cyperus rotundus</i> Linn.
Family	Cyperaceae
Synonyms	<i>Varida, Mustaka, Kuruvinda</i>
Vernacular Name	• English Name: Nut grass • Hindi Name: Motha
Classical Categorization:	• Charakasamhita: <i>Lekhaniya, Trishnanigrahana, Kandughna.</i> • Sushrutasamhita: <i>Mustadi, Vachadi.</i> • Vagbhata: <i>Mustadi, Vachadi.</i>
Part Used	• Rhizome
Rasapanchaka	• Rasa: <i>Tikta, Katu, Kashaya</i> • Guna: <i>Laghu, Ruksha</i> • Virya: <i>Sheeta</i> • Vipaka: <i>Katu</i> • Doshakarma: <i>Kaphapittashamaka</i>
Karma	• <i>Dipana, Ama-pachana, Lekhana, Shothahara, Grahi, Krumighna, Vishaghna</i>
Rogaghnata	• <i>Aruchi, Atisara, Agnimandya, Trisna, Raktavikara, Kasa, Mutrakrichha, Rajorodha, Stanyavikaara, Charmavikara, Kandu, Kushtha, Jvara, Dourbalya, Visha, Mastishkadourbalya, Vatarakta, Madatyaya, Vrana.</i>
Chemical constituents	• Cineol copadiene, copaene, cyperen 1 & 2, cyperenone, isopatchoulene, cyperotundone, cyperol, cyperolone, æ – cyperone, epoxyguaiane, isocyperol, isokobusone, kobusone, mustakone, patchulene, rotundone, æ & ß selinene, sugenol, ß sitosterol etc.
Actions & Uses	• Useful in anorexia, flatulence, colic, vomiting, dysentery.

6. PIPPALI

Latin Name	<i>Piper longum</i> Linn.
Family	Piperaceae
Synonyms	<i>Pippali, Maagadhi, Vaidehi, Kanaamula, Katushna, Chapala, Ushna, Upkulya, Tikshnatandula, Chatakshira, Ushna.</i>
Vernacular Name	• English Name: Piper

	• Hindi Name: Pippali
Classical Categorization:	• Charakasamhita: Kasahara, Shoolaprashamana • Sushrutasamhita: Pippalyadi, Shirovirechana
Part Used	• Fruit
Rasapanchaka	• Rasa: Katu • Guna: Laghu, Snigdha, Tikshna • Virya: Anushna Sheeta • Vipaka: Madhura • Doshakarma: Kaphavatashamaka
Karma	• Deepana, Vatanulomana, vatahara, Jantughna, Medhya, Balya, Krimighna, Rasayana
Rogaghnata	• Agnimandya, Aruchi, Ajirna, Gulma, Krimiroga, Arsha, Pandu, Daurbalya, Pleehavridhi
Chemical constituents	• Two alkaloids piper longumine and piper longuminine, zingiberene, piperine, pipartine, carbonyl compound, alkaloids pipemonanaline, piprude caalidine.
Actions & Uses	• Dried spikes are carminative, tonic, laxative, digestive, and antiseptic. They are useful in anorexia, dyspepsia, flatulence, colic, diarrhoea, gastric disorders.

7. SUNTHI

Latin Name	<i>Zingiber officinale</i> Roxb.
Family	Zingiberaceae
Synonyms	Kaphari, Vishva, Nagara, Mahausadha, Visvabhesaja
Vernacular Name	• English Name: Ginger • Hindi Name: Sonth
Classical Categorization:	• Charakasamhita: Truptighna, Deepaniya, Arshoghna, Shoolaprashamana • Sushrutasamhita: Pippalyadi, Trikatu • Bhavprakash: Panchakola, Shadushana
Part Used	• Rhizome
Rasapanchaka	• Rasa: Katu • Guna: Laghu, Snigdha • Virya: Ushna • Vipaka: Madhura • Doshaghnata: Vata-Kaphashamaka
Karma	• Vedanasthapana, Vataashamaka, Sheetaprashamana, Rochana, Deepana, Pachana, Triptighna, Vatanulomana, Bhedana, Grahi
Rogaghnata	• Aruchi, Chhardi, Agnimandya, Ajirna, Vibandha, Anaha, Gulma, Udarashoola, Arsha, Hridroga, Sheetapita

Chemical constituents	• Heptane, isovaloraldehyde, camphene, casinine, myrecene, limonene, gingerol, zingerone, ginger glycolipids A, B, C, gingersols, cysteine, leucine and arginine
Actions & Uses	• The dry ginger is emollient, appetizer, laxative, stomachic, stimulant, anthelmintic and carminative. It is useful in dyspepsia, piles, hyperacidity, abdominal pain and vomiting.

8. JIRAKA

Latin Name	<i>Cuminum cyminum</i> Linn.
Family	<i>Apiaceae</i>
Synonyms	<i>Medhya, Ajaji, Dipaka, Dirghaka, Auttara Patha, Jarana</i>
Vernacular Name	• English Name: Cumin seeds • Hindi Name: Safeed Jeera
Classical Categorization:	• Charakasamhita: Shoolaprashamana • Sushrutasamhita: Pippalyadi • Vagbhata: Pippalyadi
Part Used	• Fruits
Rasapanchaka	• Rasa: Katu • Guna: Laghu, Ruksha • Virya: Ushna • Vipaka: Katu • Doshaghnata: Kapha-Vata shamaka
Karma	• <i>Vrushya, Deepana, Pachana, Garbhasaya Shodhaka, Grahi</i>
Rogaghnata	• <i>Krimi, Jirna Jwara, Adhmana, Kustha, Grahani, Atisara, Gulma, Netra roga.</i>
Chemical constituents	• It contain 3.5 to 5.2 % volatile oil called as tymene. Cuminin, diacyl glycerol, oxalic, cuminaldehyde, p-cymene etc.
Actions & Uses	• The paste is an anti-inflammatory and analgesic action. It alleviates the inflammation of uterus it is also a galactagogue and aphrodisiac. It is used in leucorrhoea.

9. KRISHNAJIRAKA

Latin Name	<i>Carum carvi</i> Linn.
Family	<i>Apiaceae</i>
Synonyms	<i>Asitajiraka, Krishnajiraka</i>
Vernacular Name	• English Name: Black Caraway • Hindi Name: Kala Jeera
Part Used	• Fruits
Rasapanchaka	• Rasa: Katu • Guna: Laghu, Ruksha • Virya: Ushna

	• Vipaka: <i>Katu</i> • Doshaghnata: <i>Kapha-Vata shamaka</i>
Karma	• <i>Deepana, Aruchi, Agnimandya, Mukha durgandhanashana</i>
Rogaghnata	• <i>Ajirna, Gulma, Udarashoola, Krimi</i>
Chemical constituents	• The major compounds occurring in caraway are carvacrol, carvone, α-pinene, limonene, γ-terpinene, linalool, carvenone, and p-cymene, whereas the major compounds occurring in cumin are cuminaldehyde, limonene, α- and β-pinene, 1,8-cineole, o- and p-cymene, α- and γ-terpinene, safranal and linalool.
Pharmacological actions	• It possess anti-oxidant, diuretic, anti-diabetic, anti-microbial activities.
Actions & Uses	• Caraway was used for gastrointestinal cramps and feelings of fullness, as well as nervous cardiac-gastric complaints, in spasmodic gastrointestinal complaints, flatulence, irritable stomach, indigestion, lack of appetite, dyspepsia in adults, and in relieving flatulent colic of infants.

10. LAUHA BHASMA

Latin Name	<i>Ferrum.</i>
Rasapanchaka	• Rasa: <i>Tikta, Madhura, Kashaya</i> • Guna: <i>Guru, Ruksha</i> • Virya: <i>Sheeta</i> • Vipaka: <i>Madhura</i> • Doshaghnata: <i>Kapha-Pitta shamaka</i>
Karma	• <i>Deepana, Lekhana, Balya, Medhya, Vrishya, Rasayana, Sarvavyadhihara</i>
Rogaghnata	• <i>Raktapitta, Kasa, Shwas, Palita, Shula, Amlapitta, Pandu, Kamala, Mutrakriccha</i>

Table No. 2: Average of Pharmacodynamics of Vidangadi Lauha

Properties	Observations in <i>Vidangadi Lauha</i>	
	Total No. of Drugs	Percentage%
Rasa		
<i>Madhura</i>	3/10	30
<i>Amla</i>	2/10	20
<i>Katu</i>	8/10	80
<i>Lavana</i>	0/10	00
<i>Tikta</i>	4/10	40
<i>Kashaya</i>	6/10	60
Guna		
<i>Guru</i>	2/10	20

Laghu	8/10	80
Ruksha	8/10	80
Snigdha	2/10	20
Tikshna	2/10	20
Vipaka		
Madhura	6/10	60
Katu	4/10	40
Virya		
Ushna	6/10	60
Sheeta	3/10	30
Anushna Sheeta	1/10	10
Doshagnata		
Tridoshahara	4/10	70
Kapha-Vatahara	5/10	80
Kapha-Pittahara	1/10	10
Karma		
Dipana	8/10	80
Vrushya	7/10	70
Pachana	6/10	60
Rasayana	5/10	50
Anulomana	4/10	40
Medonashaka	4/10	40
Trushnanigraha	4/10	40
Balya	4/10	40
Lekhanya	3/10	30
Chakshushya	3/10	30
Dahaprashamana	1/10	10

4. DISCUSSION

In Ayurveda, disease diabetes mellitus can be correlated with Madhumeha. It is Tridoshaja in origin with predominance of Kapha. The ingredients of Vidangadi Lauha consists of Vidanga, Triphala, Musta, Pippali, Sunthi, Jiraka, Krishnajiraka, and Lauha Bhasma. There are many drugs are described alone or in combination in various Ayurvedic classics in Madhumeha. One of the main content (9 parts) in the Vidangadi Lauha is Lauha. It mainly acts on Mutravaha Srotas. It is effective on main dosha i.e. Apana Vayu.

Vidangadi Lauha showed the dominance of Kashaya, Katu and Tikta Rasa. Katu Vipaka and Ushna Virya with the dominance of Ruksha and Laghu Guna. Therefore they are effective on main Dushya i.e. Bahudrava Shleshma. It is able to control Kaphadosha & Medodushti mainly, which are main Dushya in Madhumeha. Majority of Dravya have Agnideepana, Amapachana, Rasayana, Vushya, Anulomana, Trushna nigraha, Chakshusya, Lekhana and Medohara properties. Rasayana property helps in reducing Daurbalya, Klama, Hasta-padata Daha and Karpada Suptata.

All the Dravya have Deepana Pachana properties mainly Deepana, Pachana property reduces

the Ama present in the body. Its helps to improve disturbed metabolism. Therefore, it mainly acts on Dhatvagnimandya and has been proved very effective in all sign and symptoms like Shithilangta, Aalasya, Visrshariragandha, Tantra, Trushnanigraha and property reducing Pipasa. (Table 1 & 2).

Vidangadi Lauha has pharmacological activity like anti-oxidant and anti-diabetic effect and in reducing the blood sugar level could be due to the antioxidant mechanisms, free radical scavengers which is a key step .

5. CONCLUSION

The classical formulation Vidangadi Lauh is a very unique which finds its great utility in management of Medumeha (Diabetes mellitus Type - II) and therefore need scientific evaluation through pharmacological and clinical studies to validate the same. Large scale manufacturing and multiples of clinical trials can be useful for generation of large amount of clinical trial data.

CONSENT

It is not applicable.

ACKNOWLEDGEMENTS

The authors are thankful to the Director, S.G.M.P.G. Ayurvedic College and Hospital for providing facilities, support and to carry out the research work in the institute.

COMPETING INTEREST

Authors have declared that no competing interest exist.

REFERENCES

- ⁱ Ayurvedic Pharmacopoeia of India Part- I, Volume-I. New Delhi: MHFWDISMH; 2001. P.48
- ⁱⁱ Ayurvedic Pharmacopoeia of India Part- I, Volume-I. New Delhi: MHFWDISMH; 2001. P.48
- ⁱⁱⁱ Ayurvedic Pharmacopoeia of India Part- I, Volume-I. New Delhi: MHFWDISMH; 2001. P.26
- ^{iv} Ayurvedic Pharmacopoeia of India Part- I, Volume-I. New Delhi: MHFWDISMH; 2001. P.26
- ^v Ayurvedic Pharmacopoeia of India Part- I Volume-I. New Delhi: MHFWDISMH; 2001. P.26
- ^{vi} Ayurvedic Pharmacopoeia of India Part- I Volume-I. New Delhi: MHFWDISMH; 2001. P.4
- ^{vii} Ayurvedic Pharmacopoeia of India Part- I Volume-I. New Delhi: MHFWDISMH; 2001. P.4