ejpmr, 2021,8(6), 265-270

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Review Article

ISSN 2394-3211

EJPMR

A CRITICAL REVIEW OF DASHAMULA FORMULATIONS INVARIOUS DISEASES

Dr. Kanchan Sharma*[1] and Dr. M. R Pandya[2]

[1]Final Year P.G Scholar, Department of Rasashastra and Bhaishajya Kalpana, Parul Instituteof Ayurved, Parul University, Vadodara (Gujarat) – India.

[2]Professor and Head of Department of Rasashastra and Bhaishajya Kalpana, Parul Instituteof Ayurved, Parul University, Vadodara (Gujarat) – India.

***Corresponding Author: Dr. Kanchan Sharma**
Final Year P.G Scholar, Department of Rasashastra and Bhaishajya Kalpana, Parul Institute of Ayurved, Parul University, Vadodara (Gujarat) – India.

Article Received on 13/04/2021 **Article Revised on 04/05/2021** **Article Accepted on 25/05/2021**

ABSTRACT

Dashamula (group of ten plants) as the name suggests contains roots of ten different plants. Of these, five are known as Brihat Panchamula and the remaining as Laghu Panchamula. It isused in the form of Kwath or Arishta according to Ayurveda. These formulations are used by the Ayurvedic practitioners in various conditions such as headache, relief of pain and swellingrelated to arthritis, pyrexia, abdominal distension and costo-chondral pains. It is described as an analgesic, anti-arthritic and anti-rheumatic combination. It is believed that the 10 ingredients in Dashamula may be serving different roles like adjuvant, carrier agent and stabilizer etc. Some of these ingredients have been evaluated in experimental models of inflammation and pain and have shown to possess anti-inflammatory and analgesic activities. Here this review article aims to give an overview on the various Dashamula formulations in the ancient text, it's probable mode of action as well as the recent scientific information of Dashamula, an Ayurvedic traditional herbal formulation with potential for the prevention andtreatment of different diseases.

KEYWORDS: Dashamula, Laghu Panchmula, Brihat Panchmula, Arishta, Kwatha.

INTRODUCTION

The word "Dash" means ten and "Mula" means root. It consists of roots of ten plants which are divided further into two sub-groups; Brihat Panchamula and Laghu Pachamula. The former consists of five bigger plants (trees) - Bilva, Patala, Syonaka, Gambhari and Agnimantha while the latter consists of smaller ones (herbs) - Salaparni, Prisniparni, Brihati, Kantakari, and Goksura. All the plants of Brihat Panchamula have Tikta, Kashaya Rasa, Ushna Veerya and Katu Vipaka, whereas the constituent plants of Laghu Panchamula have Kashaya, Tikta Rasa, Ushna Veerya and Madhura Vipaka. Dashamula, as a whole, acts on Tridosha, particularly on Vata Dosha, while the subgroups are effective particularly in Vata- Kapha Dosha and Vata-Pitta Dosha respectively. Dashamula (group of ten plants) is named so as it connects the ten Indriyas i.e. Pancha Gyanendriya (Chakshu, Shrotra, Ghraana, Rasanaa, Sparshna) and Pancha Karmendriya (Vaak, Paani, Paada, Paayu, Upastha). Dashamula is named also because it subsides ten types of Vayu viz. five types of AbhyantaraVayu (Prana, Udana, Samana, Vyana, Apana) and five types of Bahya Vayu (Dhananjaya, Daivavrit, Krinkala, Naga, Kurabha).[1] Also it strengthens ten Mahamula Dhamanis (the ten great vessels carrying Ojas with Rakta), pacifies all kinds of Vata and supports ten Indriyas, So, it is called Dashamula. Dashamula sustains Ojas, sense-organs and ten Pranayatanas (seats of vitae). Root bark of the bigger plants is used i.e Brihat Panchamula and whole root of Laghu Panchamula is used. Dashamula is commonly used in the form of decoction.

Dashamularista is a popular formulation indicated in puerperal disorders (Sutika-Roga). Acharya Charaka mentions Dashamula as Sothahara Mahakasaya which indicates its action on Sotha (oedema). Vijayarkşita says it is effective in both Sotha and Jvara. At another place, Acharya Charaka has mentioned Brihat and Laghu Pancamulas under 'Panca Pancamulas' the other three being Madhyama, Jivana and Trina. Susruta, however, has replaced Madh, Yama and Jivana Pancamulas with Kantaka and Valli Pancamulas which are more appropriate for the surgical affections.[2] The herbs are used in making certain therapeutic massage oils, and are also used in the form of decoction to treat certain conditions. The drug of choice for treating Vata Dosha is Dashamula. In the Ayurvedic system of medicine it is used as an analgesic, antiarthritic, against cough and rheumatism etc.[3]

Combination of Brihat Pancamula and Laghu Pancamula is known as Dashamula.

Table No. 1: Table showing Drugs of Dashamula with Guna karma.[4]

Sl. No.	Dravya Name	Botanical Name	Guna Karma
1.	Patala	*Stereospermum suaveolens (Roxb.) DC*	**Doshakarma-** Tridosahara. **Karma-** Swasahara, Kasahara,Rujahara, Jwarahara. **Indications-** Swasa, Kasa, Siroruja, Tandra, Sotha, Jwara,Anaha, Parswapida.
2.	Agnimantha	*Premna integrifolia Linn.*	
3.	Syonaka	*Oroxylum indicum (L.) Kurz*	
4.	Bilva	*Aegle marmelos (L.) Correa*	
5.	Kasmarya	*Gmelina arborea Roxb.*	
6.	Kantakari	*Solanum xanthocarpum Schard. &Wendl.*	
7.	Brihati	*Solanum indicum Linn.*	
8.	Salaparni	*Desmodium gangeticum (L.) DC*	
9.	Prisniparni	*Uraria picta (Jacq.) DC*	
10.	Goksuraka	*Tribulus terrestris Linn.*	

Efficacy of Dashamula Herbal Formulation

- Dashamula is mentioned under Shothahara (anti-inflammatory) (Ch./su./4/16, 38) and Vatahara drugs (Ch./su./3/19). According to Charaka Samhita, Dashamula drugs are Svayathuhara gana i.e. the group of ten drugs that combat oedema.
- In Shushruta Samhita, (Ch.38/70-71), Dashamula is considered to be Tridosha Shamak, Swashnashak, aamdoshapachak and cures all types of fever.
- In Bhavprakash, it is mentioned under Guduchyaadi Varga and is considered as Tridoshashamak. It is indicated to cure breathing disorder, cough, headache, edema, fever,
- backache etc.

Recent Advancements

These plants are reported to have anti-inflammatory, anti-fungal and wound healingproperties.[5,6]

- Individually root extracts of various plants of Dashamula viz. *Aegle marmelos (L.) Correa*,[7] *Premna integrifolia Linn.*,[8] *Desmodium gangeticum (L.) DC*,[9-12] *Oroxylum indicum (L.) Kurz*[13,14] and *Uraria picta (Jacq.) DC*,[15] *Stereospermum suaveolens (Roxb.) DC*[16] have exhibited anti-inflammatory potential in vivo.
- In a comparative study of roots of Dashamula plants it has shown that all plants as well as Dashamulas a whole possess wide-ranging in vivo anti-inflammatory potential.[17a&b]
- Dashamula is also known for having antimicrobial activity.[5]
- Dashamularishta, is a well-known drug prepared from Dashamula, is traditionally used as ananalgesic as well as anti-arthritic agent. It is used for cough, rheumatism etc. and also suggested for ovulation related disorders.[18,19]
- Dashamularishta have shown to possess anti-inflammatory activity in cotton pellet induced granuloma and carrageenan induced rat paw edema models.[20]
- It is shown that Dashamularishta has peripheral as well as central analgesic activity in various animal models.[20,21]
- A study was conducted for evaluation of efficacy of Dashamularishta in cervivitis which reports the efficacy of Dashamularishta in cervicitis for first time without any adverse effect.[22]
- In a study, it is shown that Dashamularishta possess highest anti-inflammatory potential amongst selected dosage forms of Dashamula in carrageenan induced rat paw edema model.[17a]
- In a recent study, it was found that Dashamularishta samples have exhibited significant anti-oxidant and anti-inflammatory activity.[23]
- Experimental evaluation of analgesic, anti-inflammatory and anti-platelet potential of Dashamula demonstrated that Dashamula had anti-inflammatory, analgesic and anti-platelet effects comparable to that of aspirin. It was shown that combination of Dashamula with aspirin did not offer any advantage over aspirin alone.[24]
- Evaluation of Calcium Concentration of Medicinal Plants Incorporating in Dashamula by Atomic Absorption Spectroscopy was done. The level of Calcium in selected medicinal plantswas observed to be under the prescribed limits.[25]
- Determination of natural compounds in Dashamula extracts by thin layer chromatography and high-pressure liquid chromatography was done in which attempts were made to isolate various pure bio actives from Dashamula and beta sitosterol, stigmasterol and lupeol were isolated which are potentials source as anti HIV agents. It can be concluded that these plants have potential role in future as drug or therapeutic targets.[26]
- Analgesic Effects of Dashamula, in Animal Models was evaluated. It was found that a comparatively greater degree of analgesia was observed in a group which was treated with Dashamula high dose as compared to a group which was treated with Diclofenac sodium.[27]
- Clinical Study of Sutika-Dashamula Kwatha in well-being of Sutika Shikha was conducted. Effect of the trial drugs showed improvement in physical, physiological and psychological parameters of Sutika. Along with improvement in objective parameters like Hb %, TLC, ESR, Urine RBCs, Urine WBC, Urine Epi. Cells and Urine Protein, no

adverse effect or complication was produced with the use of this treatment. Also it was concluded that thetreatment was safe, economic, non-surgical, very effective and can be progressively used during puerperium for Sutika well-being.[28]

- Elemental Analysis of Dashamula formulation by ICP-Ms Technique was done which shows the presence of zinc, manganese and other essential elements and these elements are having vital role in all the function and need of the body. So it may be useful to the human being in the cure, treatment and prevention of many diseases.[29]

OBSERVATIONS

Table no. 2: Table showing Dashamula Yogas with indication.

S.No.	Dashamuladi Yoga	Indications	Corresponding Reference
1	Dashamuladi Kwatha	Jalodara Roga, Sotha Roga,Slipada Roga, Galagraha, Vataroga	Cakradutta, Udararoga Chikitsa/47
2	Dashamula Haritaki	Jwara, Aruci, Gulma, Arsaroga,Prameha Roga, Pandu Roga, Udara Roga	Bhaisajya Ratnavali, Sotha Rogadhikara/42
3	Dashamula Kwatha Nasya	Ardhavabhedaka, SuryavartaSirasula	Cakradatta,Siroroga Chikitsa/47
4	Dashamula Kwatha Parishek	Sotha, Vrana	Cakradatta, Vidradhi Chikitsa/10
5	Dashamula Kwatha	Sutikaroga	Cakradatta, Stree roga Chikitsa/41
6	Dashamula Kwatha	Parswasula, Siroroga, Ksaya,Kasa	Cakradutta, Rajayaksma Chikitsa/11
7	Dashamula Kwatha	Parswasula, Jwara, Swasa,Kaphaja Kasa	Cakradutta, Kasa Chiktsa/23
8	Dashamula Kwatha	Kasa, Swasa, Parswasula, Hrtsula	Cakradutta, Hikka-Swasa Chikitsa/12
9	Dashamula Kwatha	Kasa, Swasa, Hrdroga, Gulma,Sula Roga	Cakradutta, Hrdroga Chikitsa/19
10	Dashamula Kwaatha	Vatakundalika, Asthila, VastivataRoga	Yogaratnakar, Mutraghata Chikitsa/Uttarardha
11	Dashamula Kwatha	Vataja Sotha Roga	Cakradutta, Sotha Chikitsa/2
12	Dashamula Kwaatha	Kantha Graha, Hrdgraha	Bhavaprakasa, Jwaradhikara/ 473
13	Dashamula Taila	Badhirya	Cakradutta, Karnaroga Chikitsa/28
14	Dashamula Taila	Abhyanga for Sirasula, Nasya forJwara, Aruchi, Paalitya	Bhaisajya Ratnavali, Siro Rogadhikara/ 65
15	Dashamula Ghrita	Vataroga	Cakradutta, Vatavyadhi Chikitsa/22
16	Dashamula Ghrita	Vataja Kasa	Cakradutta, Kasa Chikitsa/11
17	Dashamula Ghrita	Vatakaphaja Kasa, VatakaphajaSwasa	Charak Samhita, Kasa roga chikitsa/18 Chikitsa Sthana
18	Dashamuladi Leha	Pravriddha, Sotha, Jwara, Gulma,Meha, Karsya, Amavata, Amlapitta, Raktapitta, Vaivarnya,Vatajamutra dosa, Vataja Sukradosa, Svasa, Aruci, Pleeha Roga, Garavisa, Udararoga	Astanga Hridayam,Svayathu Chikitsa adhaya/17 Chikitsa Sthana
19	Dashamuladi Guda	Gulma, Pleeha, Arsa, Kustha,Meha, Agnimandya	Astanga Hridayam, Arsas Chikitsa adhaya/8 Chikitsa Sthana
20	Dashamularistha	Vata Roga, Grahani, Aruchi, Swasa, Kasa, Gulma, Bhagandara, Vatavyadhi, Ksaya, Chardi, Panduroga, Kamala, Kustha, Arshas, Meha, Mandagni,Udara, Sarkara, Ashmari, Mutrakrchra, Dhatuksaya	Sharangdhar Samhita, Sandhana Kalpana adhaya/10 madhyam kandha
21	Dashamula Kwatha	Santipaataja Jwara.	Sharangdhar Samhita, Kwaath Kalpana adhaya/2madhyam kandha

Table no. 3: Table showing chemical constituents and pictures of Dashamula.[30]

S.No.	Plant Name	Chemical Constituents	References in API
1	Bilva (*Aeglemarmelos Corr.*)	Auraptene, coumarins, glycosides–inroot; Coumarins and sterols-in bark	Part I, Vol.IV, 12–13p;Vol.III, 29–31p.
2	Agnimantha (*Clerodendrum phlomidisLinn.*)	Sterols	Part I, Vol.III, 3–5p.
3	Shyonaka (*Oroxylum indicum Vest.*)	Flavanoids, tannins	Part I, Vol.III, 209–210p.
4	Kashamari (Gambhari) (*Gmelina arborea Linn.*)	Lignans–in bark; Lignans and alkaloids–in root	Part I, Vol.IV, 31–32; Vol-I,36–37p.
5	Patala (*Stereospermum suaveolens DC.*)	Bitter substances, sterols, glycosides,	Part I, Vol.III, 147–148p.
6	Shalaparni (*Desmodium gigenticum DC.*)	Alkaloids; flavonoids, desmocarpin, pterocarpan, desmodin, gangetin, gangetinin, others:2(NNdimethylamino)acetophenone	Part I, Vol.VI, 139–141p.
7	Prishniparni(*Uraria picta Desv.*)	Alkaloids, reducing sugars and sterols	Part I, Vol.IV, 99–101p.
8	Shvadanshtra (Goksura) (*Tribulus terrestris Linn.*)	Alkaloids: terrestriamide, tribulusamideA, B: steroidal saponins, terrestrosin C-K, terrestroneoside A and F, terreside Aand B, terrestrosin J, isoterrestrosin B; flavonoid glycosides: isohamnetin-3- gentiotrioside, quercetin-3- gentiobioside-7glucoside: amide, moupinamide–in bark; Alkaloids and saponins-in root	Part I, Vol.VI, 56–58p;Vol.I. 38–39p.
9	Brihati (*Solanumanguivi Lam.*)	Steroidal saponins: protodiscin saponinC, indioside A, B, C, D and E, solafuranone.	Part I, Vol.VI, 26–28p.
10	Kantakari (*Solanum surattense Burm.f., syn- solanum xanthocarpumSchard and Wendl.*)	Glucoalkaloids and Sterols	Part I, Vol.VI, 59–61p

DISCUSSION

Dashamula is a combination of roots of ten plants i.e. Bilva (*Aegle marmelos Corr.*), Agni- mantha *(Clerodendrum phlomidis Linn.*), Shyonaka (*Oroxylum indicum Vest.*), Patala (*Stere- ospermum suaveolens DC.*), Kashamari (Gambhari)(*Gmelina arborea Linn.*), Shalaparni (*Desmodium gigenticum DC.*), Prishniparni (*Uraria picta Desv.*), Shvadanshtra (Goksura) (*Tribulus terrestris Linn.*), Brihati (*Solanum anguivi Lam.*), Kantakari (*Solanum surattense Burm.f., syn-solanum xanthocarpum Schard and Wendl.*) which acts as Tridoshahara and specifically pacify Vata Dosha and relieves pain in all kind of inflammation. In classical texts,ample number of Dashamula formulations are given which are used by ayurvedic physician for several disorders like Swasa, Kasa, Siroruja, Tandra, Sotha, Jwara, Anaha, Parswapida etc. The clinical efficacy of Dashamula is quite high. A lot of research work has been done on Dashamula and on individual drugs of Dashamula. The results of these research articles are very encouraging which indicates that Dashamula have great therapeutic properties according to its Guna and Karma. Total 21 formulations of Dashamula were reviewed from different classical texts which are indicated for different diseases. Dashamula is widely used in varied form like in the form of Kwaath, Taila, Leha etc. Different formulations of Dashmula treat different kind of ailments. Mostly all the drugs of Dasamula exhibit anti-inflammatory prop-erties.

Probable Mode of Action

Brihatpanchmula is Kaphashamak due to its Laghu, Ushna, Ruksha Guna and Tikta-Kashaya Rasa. It is Vatashamak due to its Ushna Virya. Brihatpanchmula drugs are Tikta, Madhura Rasa Pradhana having Dipana, Pachan property because of its Tikta rasa and Ushna virya. So,it is indicated in Agnimandya, Aruchi, Ajeerna and Grahani Roga. Dashmula clears the ob- struction of Pranavaha Strotas due to its Ushna Virya and Kapha Shamak properties; it is spe-cially indicated in Vataja and Vata-Kaphaja Kasa and Swaas Roga.

Laghupanchmula drugs are Kasaya, Tikta, Madhura Rasa Pradhana, Vatapitta Shamak due toMadhur Rasa, Madhur Vipaka and Ushna Virya and Pitta Shamak due to its Madhur-Tikta Rasa and Madhur Vipaka. Laghupanchmula is having Madhur Vipaka which increases the Dhatu and promotes strength. It mainly subsides Vataj and Pittaj Jwara. Drugs of Laghu-panchmula in dasamula mainly act on Jwara. Dashmula Haritaki, Dashmula Kwaatha, Dash- mula Leh are indicated in Jwara, Nasya of Dashmula Taila is given in Jwara. It is used in Swasa Roga as it pacifies Vata and releases the Praana Vayu such that it moves in normal di-rection. As it has Mutral properties so it is mainly used in Vataja and Pittaja Ashmari. The Mutral properties are mainly because of Gokshura as it is Madhura Rasa predominant, Guru, Snighdha Guna and Sheeta Virya. Agnimanth, Paatla and Gambhari of Dashmula are Tik-ta-Kashaya Rasa Pradhan and Ushna Virya. These three

drugs of Dashmula are having Sotha-hara action which helps different formulations of Dashmula to treat Sotha like Dashmuladi Kwaatha, Dashmuladi Leh and Parishek of Dashmuladi Kwaatha. Kantkari and Brihati are Tikta-Katu Rasa predominant and having Laghu, Ruksha, Tikshna Guna and Ushna Virya and Katu Vipaka due to its Laghu Guna, it clears the channel which is obstructed with Kapha. As both are having Ushna Guna hence it liquefies the channels blocked with Kapha thereby having Kasahar properties. Due to its Ruksha Guna it absorbs the obstruction. Due to Ushna Virya, it subsides Vata and Kapha and does Paachan of Dosha. Dashmula Kwaatha and Dash-mula Ghrita are indicated for Kasa. Prishanparni and Vidharigandha are Madhur-Tikta Rasa Predominant, Laghu, Snigdha Guna Pradhan, Ushna Virya and Madhur Vipaka. Due to its Ushna Virya and Madhur Vipaka it pacifies Vata and is indicated in Angamardaprashman.

Shyonak of Dashmula is Madhur-Kashaya-Tikta Rasa predominant, due to its Ruksha and Laghu Guna and Ushna Virya it helps in Aampaachan. Hence different formulations of Dash-mula is having Tridoshaghna properties specially Vatadosha Shaamak and is used in VataVyaadhi.

CONCLUSION

From this review, we can concluded that Dashmula is a highly beneficial group of ten drugs which can be used in various forms in different diseases. It can be used in diseases like Swasa-Kasa, Jwara, in different Vata Vyaadhi especially in Parswapida (backache), siroruja (headache) etc. There are many recent researches which shows it has anti-inflammatory, an- timicrobial activity, analgesic effects etc. Several studies have been carried out to validate the potential of Dashmula Churna and individual plants of Dashmula. Dashmula shows lot of po- tential in future for curing various diseases and are useful for Ayurvedic physicians. This makes it one of the most valuable herbal preparations.

REFERENCES

1. Dravyaguna Adhaar, Dravyaguna Ke Adhaarbhuta Siddhaanta, Vaidya Sonia Dhimaan, the Health Science Publisher, Delhi. First edition, Mishrakganavigyaniya adhyaya, 2008; 174.
2. Dravygunasutram (Aphorisms on Dravyaguna), Prof. Priyavrat Sharma, Chowkhamba Sanskrit Bhawan, Varanasi, Second Edition, 2002; 122-123.
3. Anonymous, Preparation of kwath and dashamula kwath, Bangladesh national formulary of ayurvedic medicine. (Approved by the government of Bangladesh vide Ministry of Health and Family Welfare, Memo No. Health-1/Unani-2/89(Part-1), 1992; 116: 20-32.
4. A Text Book of Dravyaguna Vijnana, volume-1, Dr, Prakash L. Hegde, Chaukhambha Publications, New Delhi, edition: First, 2011; 424.
5. Rao ML, Savithramma N. Antimicrobial activity of Dash amoola – an ayurvedic drug. WJPR, 2012; 1(3): 803-812. www.wjpps.com, 2014; 3(6): 1530 Mohite et al. World Journal of Pharmacy and Pharmaceutical Sciences.
6. Prayagadatta S. Sharangadhra Samhita. Chowkhamba Sanskrita Academy, Varanasi, 1966.
7. Benni JM, Jayanthi MK, Suresha RN. Evaluation of the anti-inflammatory activity of Aegle marmelos (Bilwa) root. Indian J Pharmacol, 2011; 43(4): 393-397.
8. Gokani RH, Lahiri SK, Santani DD, Shah MB. Evaluation of anti-inflammatory and antioxidant activity of Premna integrifolia root. J Complement Integr Med., 2011. doi:10.2202/1553-3840.1216.
9. Rathi A, Rao ChV, Ravishankar B, De S, Mehrotra S. Anti-inflammatory and antinociceptive activity of the water decoction Desmodium gangeticum. J Ethnopharmacol, 2004; 95(2-3): 259-63.
10. Sagar MK, Upadhyay A, Kalpana, Upadhyaya K. Evaluation of antinociceptive and antiinflammatory properties of Desmodium gangeticum (L.) in experimental animal models. Archives of Applied Science Research, 2010; 2(4): 33-43.
11. Ghosh D, Anandakumar A. Antiinflammation and analgesic activity of Gangetin - A Pterocarpenid from Desmodium gangeticum. Indian J Pharmacol, 1983; 15(4): 391-402.
12. Govindarajan R, Vijayakumar M, Rao ChV, Shirwaikar A, Kumar S, Rawat AK et al. Antiinflammatory and antioxidant activities of Desmodium gangeticum fractions in carrageenan-induced inflamed rats. Phytother Res., 2007; 21(10): 975-979.
13. Zaveri M, Jain S. Anti-inflammatory and analgesic activity of root bark of Oroxylum indicum Vent. JGPT, 2010; 2(4): 79-87.
14. Khandhar M, Shah M, Santani D, Jain S. Antiulcer activity of the root bark of Oroxylumindicum against experimental gastric ulcers. Pharm Biol, 2006; 44(5): 363-370.
15. Ahirrao P, Jagtap A, Shirke S, Fernandes B. Comparative assessment of antiinflammatory potential of Asparagus racemosus and Uraria picta. Proceedings of the Physiological Society, 2007; 2007: 108.
16. Kharat U, Chanshetti R, Chavan V, Naik Y, Date N. Evaluation of anti-inflammatorypotential of aqueous extract of root bark of Stereospermum suaveolens DC. Int J Pharm Pharm Sci., 2012; 4(3): 494-496.
17. (a) Nagarkar B, Jagtap S, Narkhede A, Nirmal P, Pawar N, Kuvalekar A et al. Different ayurvedic dosage forms of Dashamula possess varied anti-inflammatory activity. WJPPS, 2013; 2(5): 3118-3136. (b) Nagarkar B, Jagtap S, Nirmal P, Narkhede A, Kuvalekar A, Kulkarni O et al. Comparative evaluation of anti-inflammatory potential of medicinally important plants. Int J Pharm Pharm Sci., 2013; 5(3): 239-243. www.wjpps.com, 2014; 3(6): 1531 Mohite et al. World Journal of Pharmacy and Pharmaceutical Science.

18. Anonymous. Preparation of kwath and Dashmulakwath, in Bangladesh National Formulary of Ayurvedic Medicine. Government of Bangladesh, Ministry of Health and Family Welfare, 1992; 20-32.
19. Gaware VM, Parjane SK, Merekar AN, Pattan SR¸ Dighe NS, Kuchekar BS et al. Female infertility and its treatment by alternative medicine: A review. J Chem Pharm Res., 2009; 1(1): 148-162.
20. Parekar RR, Dash KK, Marathe PA, Apte AA, Rege NN. Evaluation of anti-inflammatoryactivity of root bark of Clerodendrum phlomidis in experimental models of inflammation. International journal of applied biology and pharmaceutical technology, 2012; 3(3): 54-60.
21. Joshi SS, Bhalerao PP, Gajbhiye SV. Evaluation of analgesic activity of Dashamula rishtha formulation by using experimental models of nociception. International Journal of Pharmacology and Therapeutics, 2013; 3(3): 59-64.
22. Swati Mohite, Esha Kapoor, Bhagyashri Nagarkar. Evaluation of efficacy of Dashamularishta in cervivitis. WJPR, www.wjpps.com, 2014; 3(6): 1526-1532. ISSN 2278-4357 Mohite et al. World Journal of Pharmacy and Pharmaceutical Sciences.
23. Pawar N, Kogje A, Bhondave P, Nagarkar B, Kulkarni O, Harsulkar A et al. Comparative free radical scavenging and anti-inflammatory potential of branded market samples of an Ayurvedic formulation: Dashamoolarishta. Int J Pharm Bio Sci., 2013; 4(1): 789-799.
24. Reshma R. Parekar, Somesh S. Bolegave, Nirmala N. Rege. Experimental evaluation of analgesic, anti-inflammatory and anti-platelet potential of Dashamula, Jan-Mar, 2015; 6(1): 11-18. Journal of Ayurveda and Integrative Medicine.
25. Yogita Choudhary, Abhishek Saxena, Yatendra Kumar. Evaluation of Calcium Concentration of Medicinal Plants Incorporating in Dashamula by Atomic Absorption Spectroscopy. Pharmaceutical and Biosciences Journal.
26. Sarvam Mittal, Nidhi Rao, Sudhanshu. Determination of natural compounds in Dashamula extracts by thin layer chromatography and high-pressure liquid chromatography., 3(6): 814-817. International Journal of Research in Ayurveda and pharmacy.
27. Ravi Shekhar Singh, Mushtaq Ahmad, Zahoor Ahmad Wafai www.jcdr.net. Analgesic Effects of Dashamula, in Animal Models.
28. Shikha Sharma, Pravin Kumar Rai.Clinical Study of Sutika-Dashamula Kwatha in wellbeing of Sutika Shikha, 2015; 3(3D): 1316-1319. Scholar Journal of Applied MedicalScience (SJAMS).
29. Saxena Abhishek, Chaudhary Yogita, Singh Manisha. Elemental Analysis of Dashamula Formulation by ICP-Ms Technique, 12(03): 25-29. Journal of Pharmacy and Biological Science.
30. Ashutosh Kumar Pathak, H. H. Awasthi1, Ajai Kr. Pandey. Use of Dashamoola in Cervical Spondylosis: Past and Present Perspective. Journal of AYUSH: Ayurveda, Yoga, Unani, Siddha and Homeopathy. ISSN: 2278-2214 (online), ISSN: 2321-6484 (print) Volume 4, Issue1 www.stmjournals.com.