RESEARCH PAPER

"Pharmacodynamic Analysis of Dashamula Kwatha In The Management Of Ardita"

Dr. Aftab M. Aga*[1], Dr. Rupa Bhatt[2]
*[1]M.D. (Scholar), Department of Kayachikitsa, Dhanvantari Ayurvedic Medical College Siddapur, Uttara Kannada, Karnataka, India.
[2]Professor & Head, Department of Kayachikitsa, Dhanvantari Ayurvedic Medical College Siddapur, Uttara Kannada, Karnataka, India.
Corrosponding Author
Dr. Rupa Bhatt
Professor & Head, Department of Kayachikitsa, Dhanvantari Ayurvedic Medical College Siddapur, Uttara Kannada, Karnataka, India.
Ayurroopa@gmail.com

Abstract
Kayachikitsa is one of the major branches of Ayurveda, primarily concerned with the diagnosis, prevention, management, and treatment of internal diseases based on fundamental Ayurvedic principles. Among the *Vata Nanatmaja Vyadhis*, *Ardit* is described as one of the eighty disorders caused predominantly by the vitiation of *Vata Dosha*. It is characterized by impairment of the sensory and motor functions of the facial region, resulting in unilateral facial weakness or paralysis. Clinically, *Ardit* bears considerable resemblance to Bell's palsy, a condition characterized by temporary paralysis of the facial nerve, commonly affecting one side of the face and leading to facial asymmetry, impaired facial expressions, slurred speech, and difficulty in closing the affected eye.

Ardit is a *Vata Nanatmaja Vyadhi* described in Ayurveda and is characterized by functional impairment of the facial region due to predominant vitiation of *Vata Dosha*. Its clinical manifestations, including unilateral facial weakness, deviation of the facial features, difficulty in eye closure, and impairment of speech, show considerable similarity to Bell's palsy. Classical Ayurvedic texts provide detailed descriptions of its *Nidana, Purvarupa, Rupa, Samprapti,* and *Chikitsa*, along with appropriate *Pathya-Apathya*. Various herbal formulations and *Panchakarma* therapies have traditionally been employed for its management. Among these, *Dashamula Kwatha* holds an important place owing to its classical indication in *Vataja* disorders and its potential therapeutic actions.

Despite its long-standing traditional use, the pharmacological basis and mechanisms underlying the therapeutic effects of *Dashamula Kwatha* in facial nerve dysfunction have not been comprehensively explored. Therefore, the present review aims to compile and critically analyse the available Ayurvedic and contemporary literature concerning the pharmacodynamic properties, therapeutic actions, and possible mechanisms of *Dashamula Kwatha* relevant to the management of *Ardit*. This review may provide a scientific basis for understanding its traditional use and encourage further experimental and clinical research.

Key Words - Dashmul Kwatha , nanatmaj Vat Vyadhi, Ardit, Bell's palsy.
How to cite this article: Aftab M. Aga*1 Dr. Rupa Bhatt2. "Pharmacodynamic Analysis of Dashamula Kwatha In The Management Of Ardita". Int J Drug Deliv Technol. 2026;16(88s):1959-1967. DOI: 10.25258/ijddt.16.88s.200.

Introduction

Ayurveda is the traditional medicinal system of India. It not only focuses on the diagnosis and treatment of diseases and also have wild variety of formulations that are considered safe, effective and having fewer side effects.[1] Kaychikitsa is the one of the branch of Ayurveda dealing with therapeutic management of diseases affecting the body, particularly internal disorders on the basis of Dosha, Dushya, Agni, Strotus and Ama.[2] Vata is responsible for movement, nerve functions, sensory and motor activities and many physiological process.[3] Nanatmaj Vyadhi are the diseases predominantly caused by the involvement of of single Dosha . 80 nanatmaj vyadhis of Vata dosha are described with their differential diagnosis.[4]

Ardit is one of the most common disease found in all age group and both genders. Ayurvedic Samhita has highlighted this vyadhi with the following points Nirukti, Paribhasha, Nidana, Purvarupa, Rupa, Samprapti, Bheda, Chikitsa, and Pathya-Apathya.[5] It stands close with Bells Palsy. Bells palsy is condition causes due to temporary paralysis of facial nerve. It happens due to inflammation and swelling of your

seventh cranial nerve which controls facial muscles. The clinical presentation of disease is rapid onset of, unilateral, lower motor neuron type facial weakness with symptoms of post auricular pain, dyspepsia, change in facial sensation and hypercusis. [6] The condition affects 15 to 40 of every 100,000 people annually and recurs in approximately 10% of cases.[7]

Ancient Acharyas used both plant and mineral based medicines for the management of various diseases. The pharmacodynamics of Ayurved drug is important for understanding its effects, mechanism of actions, therapeutic actions and physiological responses. Pharmacodynamic understanding is essential for the development of evidence-based Ayurvedic formulations, particularly in the management of chronic and lifestyle-associated disorders. According to Ayurveda, the therapeutic action of a drug is primarily determined by the five components of Rasa Panchaka—Rasa, Guna, Virya, Vipaka, and Prabhava. These factors may act individually or synergistically to modulate Dosha balance, restore the normal state of Dhatus, and promote overall health and well-being .

Dashamula Kwath is Classical herbal formulation traditionally used in the management of vata disorders. The name literally means " ten roots" (Dasha- ten; Mula – Roots) . Dashamula Kwatha is Ayurvedic decoction predominantly used for Vata-related disorders, anti-inflammatory, analgesic, antioxidant, immunomodulatory, and antimicrobial activities. Dashamula consists of Brihat Panchamula i.e. Gokshura(Tribulus terrestris), Shalaparni (Desmodium gangeticum), Prishniparni (Uraria picta), Kantakari (Solanum xanthocarpum) and Bruhati (Solanum indicum) and Bruhat panchamoolai.e. Bilva (Aegle marmelos), Agnimantha (Premna integrifolia), Shyonak (Oroxylum indicum), Gambhari (Gmelina arborea) and Patala (Stereospermum suaveolens). Combination of both Dashamoola is indicated in Vata predominant Tridoshaj disorders.[8] Dashamoola used in most of the dosage forms like,Kwatha, Vati, Guti, Avaleha, Asava, Arishta, Dhupa, Dhooma, Ghrit, Taila, Lepa, Hima, Phanta, Guggulu etc. for Pana, Abhyanga, Nasya, Basti, Parishek etc. kalpana for different uses. The combination of Dashamula (Kwatha) can provide a versatile therapeutic approach for managing various disorders. Its therapeutic effectiveness may be enhanced by incorporating different Prakshepa Dravyas, using diverse dosage forms, and administering the formulation through different routes of administration according to the disease condition and the patient's requirements.[9]

Aim & Objectives

AIM

To review the pharmacodynamics, therapeutic mechanism and applications of Dashamula Kwatha with special reference to Vata Vyadhi - Ardit.

Objectives

To analyse their synergistic effects and pharmacodynamic relevance in Ardita, providing a rational basis for its traditional therapeutic application

Materials and Methods

The study was conducted through a comprehensive review of classical Ayurvedic texts and relevant contemporary scientific literature pertaining to Dashamula Kwatha and Ardita.

Relevant information was also retrieved from reliable online scientific databases and digital resources

Table 1: Ingredients of Dashamoola Kwath

Sr. No.	Group	Ayurvedic Name	Latin / Botanical Name	Family	Quantity for Kalpa
1	Brihat Panchamula	Bilva	*Aegle marmelos* (L.) Corrêa	Rutaceae	1 part
2		Agnimantha	*Clerodendrum phlomoides* L.	Lamiaceae	1 part
3		Shyonaka	*Oroxylum indicum* (L.) Kurz	Bignoniaceae	1 part
4		Patala	*Stereospermum suaveolens* (Roxb.) DC.	Bignoniaceae	1 part

5		Gambhari	*Gmelina arborea* Roxb.	Lamiaceae	1 part
6	Laghu Panchamula	Shalaparni	*Desmodium gangeticum* (L.) DC.	Fabaceae	1 part
7		Prishniparni	*Uraria picta* (Jacq.) Desv. ex DC.	Fabaceae	1 part
8		Brihati	*Solanum indicum* L.	Solanaceae	1 part
9		Kantakari	*Solanum virginianum* L.	Solanaceae	1 part
10		Gokshura	*Tribulus terrestris* L.	Zygophyllaceae	1 part

Method of preparation of Dashamoola Kwath (10)

Preparation of Dashamoola Kwatha According to Acharya Sharangadhara

The ingredients of *Dashamoola* are first identified, cleaned thoroughly, and freed from extraneous matter.

The individual drugs are dried appropriately and reduced to a **Yavakuta Churna**.

Then 10 gm **of Yavakuta Churna** are then mixed with 160 ml of water.

The mixture is allowed to boil over mild heat until the volume is reduced to one-fourth of the initial quantity**.**

During boiling, the mixture is stirred intermittently to facilitate proper extraction of the soluble constituents. After attaining the desired reduction, the preparation is removed from heat and filtered through a clean cloth to separate the drug residue. The clear filtrate obtained is the prepared *Kwatha*.

The freshly prepared *Dashamoola Kwatha* is administered in a warm condition, with the appropriate dose 4 Pala (40 ml) and *Anupana* selected according to the disease condition and therapeutic requirement.

Table 2: Constituents of Dashamula Kwatha with Rasa , Guna , Virya, Vipaka and Prabhav

Sr. No.	Drug	Rasa	Guna	Virya	Vipaka	Prabhava / Specific Action
1	Bilva (*Aegle marmelos*) [10]	Kashaya, Tikta,	Laghu, Ruksha	Ushna	Katu	Grahi, Deepana
2	Agnimantha (*Clerodendrum phlomoides*) [11]	Tikta, Katu, Kashaya, Madhur	Laghu, Ruksha	Ushna	Katu	Vata-Kapha Shamaka
3	Shyonaka (*Oroxylum indicum*)[12]	Kashaya, Tikta	Laghu, Ruksha	Ushna	Katu	Shothahara
4	Patala (*Stereospermum suaveolens*) [13]	Tikta, Kashaya	Guru, Ruksha	Anushna	Katu	Shothahar, Vishaghna
5	Gambhari (*Gmelina arborea*)[14]	Madhura, Tikta, Kashaya	Guru	Sheeta	Katu	Vata-Kapha Shamaka, Brimhana
6	Shalaparni (*Desmodium gange*	Madhura, Tikta	Guru, Snigdha	Ushna	Madhura	Balya, Rasayana

	ticum)[15]					
7	Prishniparni (*Uraria picta*)[16]	Madhura, Tikta	Guru, Snigdha	Sheet	Madhura	Balya, Vrushya Brimhana
8	Brihati (*Solanum indicum*)[17]	Katu, Tikta	Laghu, Ruksha, Tikshna	Ushna	Katu	Kapha-Vata Shamaka, Rechak
9	Kantakari (*Solanum virginianum*)[18]	Katu, Tikta	Laghu, Ruksha,	Ushna	Katu	Kaphahara, Shwasahara
10	Gokshura (*Tribulus terrestris*)[19]	Madhura	Guru, Snigdha	Sheeta	Madhura	Mutrala, Vrishya

Table 3: Ingredients of Dashamula Kwaha with their Doshaghnata and Karma

Sr. No.	Dashamula Ingredient	Dosha-ghnata	Important Karma
1	Bilva (*Aegle marmelos*)	Vata-Kapha Shamaka	Deepana, Pachana, Grahi, Shothahara
2	Agnimantha (*Clerodendrum phlomoides*)	Vata-Kapha Shamaka	Deepana, Pachana, Shothahara, Vedanasthapana
3	Shyonaka (*Oroxylum indicum*)	Tridosha Shamaka	Shothahara, deepan, Stambhan, Balya
4	Patala (*Stereospermum suaveolens*)	Tridosh Shamaka	Shothahara, Deepana, Pachana, Balya, Vatahar
5	Gambhari (*Gmelina arborea*)	Vata-Kapha Shamaka	Balya, Shothahara, Vatahar
6	Shalaparni (*Desmodium gangeticum*)	Tridosha Shamaka	Balya, Rasayana, Shothahara
7	Prishniparni (*Uraria picta*)	Tridosha Shamaka	Balya, Shothahara, Rasayana
8	Brihati (*Solanum indicum*)	Vata-Kapha Shamaka	Kaphahara, Shwasahara, Kasa-hara, Deepana
9	Kantakari (*Solanum virginianum*)	Vata-Kapha Shamaka	Kaphahara, Shwasahara, Kasa-hara, Deepana
10	Gokshura (*Tribulus terrestris*)	Vata-Pitta Shamaka	Mutrala, Balya, Vrishya, Shothahara

Table 4 : Ingredients of Dashamula Kwaha with their pharmacological Actions

No.	Ingredient	Botanical name	Major pharmacological actions
1	Bilva	Aegle marmelos	Anti-inflammatory, antioxidant, antimicrobial, antidiarrheal,antidiabetic, analagesic, anticancerous , Hepatoprotective , Antiulcer, Immunomodelatory, Radioprotective, Cytoprotective, Wound Healing, Diurectic, Antiarthritis, Antispermatogenic,Antithyroid, Contractile, Peptic Ulcer [20]
2	Agnimantha	Premna integrifolia (syn. P. mucronata)	Anti-inflammatory, analgesic, antioxidant, antimicrobial, antinociceptive, Antiarthritic, Antibacterial, Anticancer, Hypolipidemic, gastroprotective, Cardioprotective, CNS Depressant,

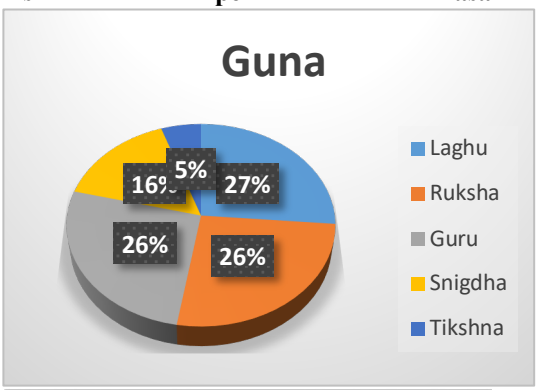
			hepatoprotective, Hypoglycemic, Immunomodulatory[21]
3	Shyonaka	Oroxylum indicum	Anti-inflammatory, antioxidant, analgesic, antimicrobial, Antiulcer, Anticcancer, Antimutagenic, Antiarthritic, Immunostimulant, Antiproliferative, Hepatoprotective [22]
4	Patala	Stereospermum suaveolens	Anti-inflammatory, analgesic, Antidiabetic, Antidiarrheal, antioxidant, antimicrobial, thrombolytic, Anti filarial, Antihyperglycemic, Antiobesity, Diuretic, Antiulcer, Gastroprotective, Neuroprotective, Immunomodulaory[23]
5	Gambhari	Gmelina arborea	Anti-inflammatory, analgesic, antioxidant, hepatoprotective, diuretic, Antidiarrheal, Antidiabeic, Antibacerial, Antifungal, Insecticidal, Antiulcer, Gastro protective Activity, Anticancer, Antihyperlipidemic [24]
6	Shalaparni	Desmodium gangeticum	Anti-inflammatory, analgesic, antioxidant, immunomodulatory, Anti conceptive, Anti amnesic, Anti Cardiovascular, Anti ulcerative, Antibacterial,[25]
7	Prishniparni	Uraria picta	Anti-inflammatory, analgesic, antioxidant, antimicrobial, Hepatoprotective, Anti acaricidal, antinociceptive, fracture healing activity, Anticancerous, Antidiabetic, Anxiolytic [26]
8	Brihati	Solanum indicum	Anti-inflammatory, analgesic, antimicrobial, antioxidant, Anti bacterial, Antiplasmodial, Hepatoprotective, Anticancerous, haemolysis activity, Carditonic, CNS depressant, Antihypertensive [27]
9	Kantakari	Solanum virginianum (syn. S. xanthocarpum)	Anti-inflammatory, bronchodilatory, expectorant, antimicrobial, Anti fertility, Hepatoprotective, Cardiovascular, Anti asthmatic, Hypoglyacemic, Antifilarial [28]
10	Gokshura	Tribulus terrestris	Diuretic, anti-inflammatory, antioxidant, analgesic, Aphrodisiac, Antiurolithic, Antidiabetic, Immunomodulatory, Hypolipidemic,

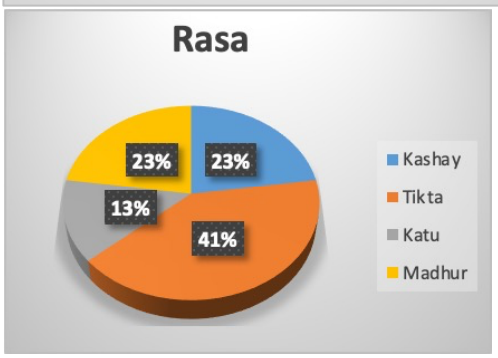
			Hepatoprotective, Antispasmodic, Anti cancerous, Antihelmintic, Anticariogenic [29]

OVERALL ANALYSIS OF INGREDIENTS OF DASHMUL

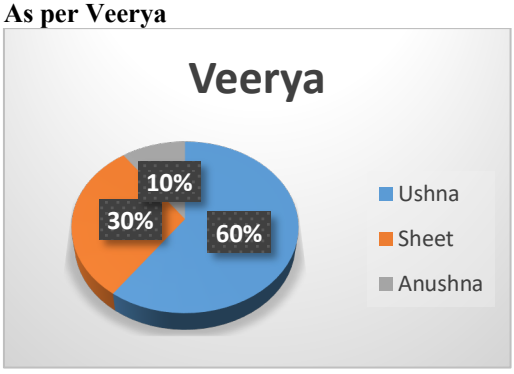
As per Guna

As per Rasa

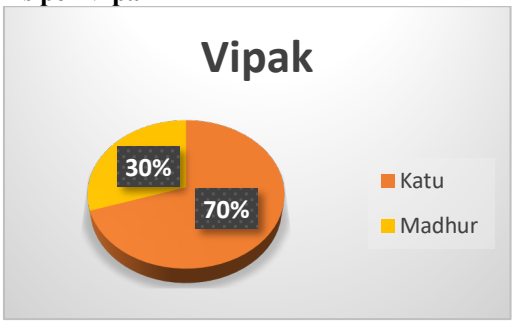




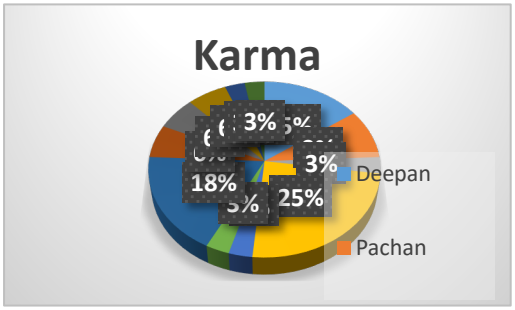
As per Veerya



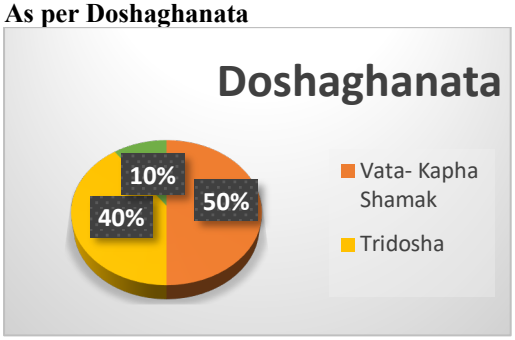
As per Vipak



As per Karma



As per Doshaghanata



Discussion

The pathogenesis of *Ardita* is predominantly associated with aggravation of *Vata Dosha*, which affects the functional activity of the facial region and produces manifestations such as *Jihma Mukha, Sankocha, Stambha, Vedana*, difficulty in eye closure, altered speech and weakness of the facial musculature. The probable *Samprapti-bhanga* action of *Dashamula Kwatha* can be understood through the combined *Vata-shamaka, Shothahara, Vedanasthapana, Balya* and *Brimhana* properties of its ten constituents, supported by their reported pharmacological activities.

Among the Mahat Panchamula, *Bilva* and *Agnimantha* may act against the *Vata*-predominant component of the disease through their *Vata-shamaka* properties, while their reported anti-inflammatory and analgesic activities may help reduce *Shotha* and *Vedana* associated with facial nerve dysfunction. Thus, they may contribute to breaking the pathological sequence of *Vata* aggravation followed by pain, stiffness and impaired movement. *Shyonaka* and *Patala*, possessing *Vatahara* and *Shothahara* properties, may similarly help reduce *Stambha* and restricted facial movements. Their reported antioxidant and anti-inflammatory activities may additionally help limit oxidative and inflammatory stress in affected tissues, thereby creating a favourable

environment for functional recovery. *Gambhari*, with its *Balya* and *Brimhana* properties, may counter the weakness associated with impaired neuromuscular function, while its reported antioxidant, anti-inflammatory and immunomodulatory activities may provide additional support for tissue protection and recovery. Collectively, these actions may be relevant to *Jihma Mukha*, facial stiffness, pain, weakness and difficulty in eye closure.

The Laghu Panchamula constituents may further contribute to *Samprapti-bhanga* by supporting the strength and functional integrity of affected tissues. *Shalaparni* and *Prishniparni*, described as *Balya* and *Brimhana*, may help overcome functional weakness of the facial, lingual and oral musculature. Their reported antioxidant and anti-inflammatory potential may additionally help protect cells from oxidative stress and inflammatory damage, which may be relevant during nerve recovery. *Brihati* and *Kantakari*, through their *Vata-kaphahara* and *Shothahara* properties, may help alleviate *Sankocha, Stambha* and *Vedana* and thereby facilitate facial and oral movements. Their reported analgesic, anti-inflammatory and antioxidant activities provide a possible contemporary explanation for these effects. *Gokshura*, possessing *Balya, Brimhana* and *Shothahara* properties, may support tissue nourishment and muscular strength; its reported antioxidant and anti-inflammatory activities may further contribute to protection of affected tissues and functional recovery.

Dashamula acts in Ardita through its combined Rasa, Guna, Veerya, Vipaka and Karma, primarily targeting the aggravated Vata Dosha responsible for impairment of facial movements. The Madhura Rasa, Madhura Vipaka and Snigdha Guna provide nourishment and support to the weakened tissues, while Ushna Veerya and Tikshna Guna help counter Vata-associated stiffness and facilitate functional movement. The Laghu and Ruksha Guna, along with Katu, Tikta and Kashaya Rasa, support Deepana-Pachana and help maintain proper physiological functioning. Vedanasthapana and Shulahara Karma alleviate pain and discomfort, whereas Shothaghna Karma helps reduce associated swelling. Balya and Rasayana Karma support tissue strength and recovery, while Deepana and Grahi Karma contribute to restoration of normal systemic and tissue functions. Thus, Dashamula may act through a multidimensional Vata-shamana, Shothaghna, Vedanasthapana, Balya and Rasayana mechanism, thereby supporting recovery of facial function in Ardita.

Thus, the *Samprapti-bhanga* of *Ardita* by *Dashamula Kwatha* may be viewed as a multilevel process. At the Ayurvedic level, its constituents may mitigate aggravated *Vata*, reduce *Shotha, Vedana* and *Stambha*, and provide *Balya-Brimhana* support to weakened tissues. At the contemporary pharmacological level, the reported anti-inflammatory, analgesic and antioxidant activities of several constituents may help reduce inflammatory and oxidative stress, while their potential immunomodulatory and tissue-protective effects may support the recovery process. These complementary actions may ultimately facilitate restoration of neuromuscular coordination and improve facial movements, thereby providing a plausible basis for the traditional use of *Dashamula Kwatha* in *Ardita*. However, these mechanisms represent a correlation between Ayurvedic pharmacodynamic principles and contemporary pharmacological evidence; direct experimental evidence demonstrating complete *Samprapti-bhanga* of *Ardita* by the formulation remains to be established.

Conclusion

The present analysis establishes an Ayurvedic pharmacodynamic rationale for the therapeutic application of Dashamula Kwatha in Ardita through systematic evaluation of the individual properties and actions of its ten constituent drugs. The collective Rasa, Guna, Veerya, Vipaka, Doshaghna and Karma of Dashamula demonstrate a predominantly Vata-modulating and restorative therapeutic profile, which is relevant to the fundamental pathogenesis of Ardita. The synergistic contribution of Vata-shamaka, Shothaghna, Vedanasthapana, Shulahara, Balya, Brimhana, Deepana and Rasayana Karma suggests potential for addressing the major pathological components, including Vata aggravation, Shotha, Vedana, Stambha and functional weakness. The constituent-wise analysis further indicates that the individual drugs may contribute complementary pharmacodynamic effects, thereby supporting the overall therapeutic action of the formulation. Hence, the observed correlation between the pharmacodynamic attributes of Dashamula and the clinical manifestations of Ardita provides a rational basis for its probable Samprapti-bhanga. These findings

strengthen the classical therapeutic rationale of Dashamula Kwatha in Ardita and provide a foundation for its systematic preclinical and clinical validation.

References

1. Http://www.biologydiscussion.com/herbal-medicines/regulatory-requirements-for-herbal-medicines-in-india/25359.
2. Dr Vidyadhar Shukla; Kayachikitsa;Part 1; Chaukhambha sur bharati Prakashan, Varanasi; Reprint 2021; Chapetr 2; Page No. 13
3. Prof. Dr. Y. G. Joshi; Kayachikitsa; Pune sahitya vitaran;Reprint 2017; Chapter27; Page No. 237.
4. Prof. Dr, Subhash Ranade; Kayachikitsa; part 2; Proficient Publishing House; Chapter 4 Page No. 195.
5. Prof. Dr, Subhash Ranade; Kayachikitsa; part 2; Proficient Publishing House; Chapter 4 Page No. 206.
6. Eviston TJ, Croxson GR, Kennedy PGE, et al Bell's palsy: aetiology, clinical features and multidisciplinary care Journal of Neurology, Neurosurgery & Psychiatry 2015;86:1356-1361.
7. Hohman MH, Warner MJ, Varacallo MA. Bell Palsy. [Updated 2024 Oct 6]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK482290/
8. Dr. Manasi Deshpande, Dravyaguna Vigyan, Part 1; Chaukhmbha Sanskrit Pratishthan, Delhi,reprint 2021; Page No. 224.
9. Neha Parmar , Suman Singh, Bhupesh Patel; A Critical Review On Different Dashamooladi Kwath Yoga; International Journal of Ayurveda and Pharma Research; ISSN: 2322 - 0902 (P) ISSN: 2322 - 0910 (O).
10. Dr. Bramhanand Tripathi; Sharngadhara Saṃhita;Chaukhamabha Surbharati Prakashan Varanasi; Reprint2017; Madhyama Khaṇḍa; 2nd Adhyaya Kwathadi Kalpana; Page no 90; Shlok No. 1-2.
11. Dr. Manasi Deshpande, Dravyaguna Vigyan, Part 2; Chaukhmbha Sanskrit Pratishthan, Delhi,reprint 2013; Page No. 64.
12. Dr. Manasi Deshpande, Dravyaguna Vigyan, Part 2; Chaukhmbha Sanskrit Pratishthan, Delhi,reprint 2013; Page No. 300.
13. Dr. Manasi Deshpande, Dravyaguna Vigyan, Part 2; Chaukhmbha Sanskrit Pratishthan, Delhi,reprint 2013; Page No. 286.
14. Dr. Manasi Deshpande, Dravyaguna Vigyan, Part 2; Chaukhmbha Sanskrit Pratishthan, Delhi,reprint 2013; Page No.289.
15. Dr. Manasi Deshpande, Dravyaguna Vigyan, Part 2; Chaukhmbha Sanskrit Pratishthan, Delhi,reprint 2013; Page No. 305.
16. Dr. Manasi Deshpande, Dravyaguna Vigyan, Part 2; Chaukhmbha Sanskrit Pratishthan, Delhi,reprint 2013; Page No.114 .
17. Dr. Manasi Deshpande, Dravyaguna Vigyan, Part 2; Chaukhmbha Sanskrit Pratishthan, Delhi,reprint 2013; Page No. 117.
18. Dr. Manasi Deshpande, Dravyaguna Vigyan, Part 2; Chaukhmbha Sanskrit Pratishthan, Delhi,reprint 2013; Page No. 270.
19. Dr. Manasi Deshpande, Dravyaguna Vigyan, Part 2; Chaukhmbha Sanskrit Pratishthan, Delhi,reprint 2013; Page No. 267.
20. Dr. Manasi Deshpande, Dravyaguna Vigyan, Part 2; Chaukhmbha Sanskrit Pratishthan, Delhi,reprint 2013; Page No. 58.
21. Aditi Pawar, Neha Bhoir, Shreyash Pardeshi, An Analysis of the Pharmacological Activity of Aegle Marmelos, Int. J. of Pharm. Sci., 2025, Vol 3, Issue 6, 1792-1797. https://doi.org/10.5281/zenodo.15624052
22. Mali PY. Pharmacological potentials of Premna integrifolia L. Anc Sci Life. 2016 Jan-Mar;35(3):132-42. doi: 10.4103/0257-7941.179864. PMID: 27143797; PMCID: PMC4850773.
23. Harminder, Singh V, Chaudhary AK. A Review on the Taxonomy, Ethnobotany, Chemistry and Pharmacology of Oroxylum indicum Vent. Indian J Pharm Sci. 2011 Sep;73(5):483-90. doi: 10.4103/0250-474X.98981. PMID: 22923859; PMCID: PMC3425058.
24. Swati Lade 1 , Shashi Alok 2 ;A POTENTIAL ROLE OF STEREOSPERMUM SUAVEOLENS DC FOR MULTIPLE DISEASES: A BRIEF ANALYSIS; Lade et al., IJPSR, 2022; Vol. 13(9): 3486-3493
25. https://www.researchgate.net/publication/324837643_emGmelina_arborea_chemical_constituents_pharmacological_activities_and_applications.

26. Bhavesh Vaghela1, Sandip Buddhadev; PHARMACOLOGICAL ACTIVITIES OF DESMODIUM GANGETICUM: AN OVERVIEW; Vol - 4, Issue - 4, Jul-Sept 2013; ISSN: 0976-7908
27. Jaykumar Mane, Dheeraj Nagore, Sohan Chitlange; Uraria Picta :A Review On Ethnomedical Uses Phytochemistry And Biological Activities; March 2021; Asian Journal Of Pharmaceutical And Clinical Research Doi:10.22159/Ajpcr.2021.V14i3.40833
28. Iqubal M, Sharma SK, Mujahid M, Hussain MS, An updated ethnobotany, phytochemical and pharmacological potential of Solanum indicum L. , Journal of Drug Delivery and Therapeutics. 2 022; 12(2):160-172 DOI: ht
29. Sandip G. Laware* and Nitin L. Shirole; A systematic review on Solanum xanthocarpum L. (Solanaceae) plant and its potential pharmacological activities; International Research Journal of Plant Science (2022) Volume 13, Issue 2.
30. Chhatre S, Nesari T, Somani G, Kanchan D, Sathaye S. Phytopharmacological overview of Tribulus terrestris. Pharmacogn Rev. 2014 Jan;8(15):45-51. doi: 10.4103/0973-7847.125530. PMID: 24600195; PMCID: PMC3931200.
31. Dr. Bramhanandan Tripathi; Charak Samhita; Uttarrardha;Chaukhamba Surbharati Prakashan; Reprint 2022; Chikitsasthan; Adhyay 28; Shloka No 38-42.
32. Dr Ambikadattashstri ; Sushrut Samhita; Uttartantra; Chaukhambhaa Sanskrit Series Office Varanasi ; Adhyay 1 ; Page no ; Shlok No. 68-73.
33. Late. Dr. Ganesh Krushna Garde; Sartha Vagbhat ; Nidansthan ; Chaukhambha surbharati Prakashan, Varansi;Reprint 2014; Adhayay15; Page No. 211; Shloka No. 32-36.
34. Dr. Bramhanandan Tripathi; Charak Samhita; Uttarrardha;Chaukhamba Surbharati Prakashan; Reprint 2022; Chikitsasthan; Adhyay 28; Shloka No 96.
35. Dr Ambikadattashstri ; Sushrut Samhita; Uttartantra; Chaukhambhaa Sanskrit Series Office Varanasi ; Adhyay 1 ; Page no ; Shlok No 68-73.
36. Late. Dr. Ganesh Krushna Garde; Sartha Vagbhat ; Nidansthan ; Chaukhambha surbharati Prakashan, Varansi;Reprint 2014; Chikitsasthan; Adhayay 21; Page No. 327; Shloka No. 42.