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Cover story

Harankaha

Botanical name: *Curcuma zedoaria* (Christm.) Roscoe
Family: ZINGIBERACEAE
Vernacular names: Sinhala: *Harankaha;* **Sanskrit:** *Shati;* **English:** Zedoary, White turmeric; **Tamil:** *Karppurakkilangku, Manipuri, Meitei yaingang;* **Hindi:** *Jangli haldi*

Curcuma zedoaria Rosc. syn. *C. zerumbet* Roxb.) closely resembles turmeric (*C. longa*) in appearance. It is a native of northeast India and is widely cultivated in many parts of China, Sri Lanka, and India[1].
Curcuma species are tropical crops used as cut flowers, landscape plants and speciality potted plants. Among this group, the beautiful inflorescence and luxurious foliage of *C. zedoaria* (Christm.) Roscoe (a traditional source of Zedoary spice, tonic, and perfume) has potential in floriculture. Zedoary is an herbaceous and rhizomatous perennial plant composed of an upright pseudostem, a corm (an ovate rhizome), underground cylindrical branches or rhizomes (that develop up to the third order when fully matured), and fleshy roots. Some roots develop terminal storage structures (rounded to elongate tuber-like roots called t-roots). Active axillary buds are on the lower side of the corm and branches. From March to April axillary buds of the corm and apical buds of the third order rhizomes emerge above ground as inflorescences[2].
Various parts of this plant are used in Ayurveda and other folk medicines for the treatment of different ailments such as diarrhoea, cancer, flatulence and dyspepsia[3].
Various parts of plant have been reported for the presence of complex phytoconstituents which includecurcumin, ethyl p-methoxycinnamate, β-turmerone,β-eudesmol, zingiberene, dihydrocurcumin, furanodiene, α-phellandrene, 1-8 cineole, β-elemene and germacrone[4].

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Retrospective case management of *Thunmamisa kaddi* (soft tissue lesion) of the foot using Siddha herbo-mineral regimens

Vadivampikan V.[1*], Mathivathanan R.S.[1] and Soruban T.[2]

Abstract

Soft tissue lesions, encompassing both benign and malignant neoplasms, may arise from fibrous connective tissue, adipose tissue, skeletal muscle, or vascular structures. In the Siddha system of medicine, such conditions may be correlated with "*Thunmamisa kaddi*" as per the Tamil-English dictionary. This case reports on a 9-year-old female admitted to the Inpatient Division, Siddha Teaching Hospital, Kaithady, with a soft tissue lesion on the dorsum of the left foot, located between the 4th and 5th metatarsal bones. The lesion was hard, fixed, and tender, measuring 31.2 × 19.9 mm, and had caused difficulty in walking for the past one and half year. The patient underwent a combined internal and external Siddha treatment protocol for four weeks. Internal medicines included *Kazharchi chooranam*, *Parangipattai chooranam*, *Ganthaga rasayanam*, and *Serankottai nei*. Externally, after cleansing with saline water, an *Uppu seelai* (salt-soaked gauze) was applied for two hours daily, followed by *Kazharchi pattru* for three weeks and a herbo-mineral *Pattru* in the final week. Progress was evaluated using the Soft Tissue Tenderness Grading Scheme (STTGS) and digital Vernier scale measurements. The lesion size reduced significantly to 15.5 × 12.3 mm, and the STTGS improved from 4 to 1. Pain subsided, and mobility improved markedly. The treatment was non-invasive, safe, and well-tolerated, with high patient satisfaction and no adverse effects. This case underscores the potential of Siddha therapies in managing soft tissue lesions, encouraging further scientific validation in larger populations.

Keywords: Herbo-mineral *Pattru, Kazharchi pattru*, Salt-soaked gauze, Soft tissue lesion, *Thunmamisa kaddi, Uppu seelai*

Introduction

Soft tissue lesions belong to a large and heterogeneous group of disorders, varying from normal anatomic variants, inflammatory and infectious lesions, soft tissue trauma, foreign body reactions, skin lesions, metabolic disorders, non-neoplastic vascular lesions, amyloidosis and miscellaneous disorders[1]. Soft tissue lesions, encompassing both benign and malignant neoplasms, may arise from fibrous connective tissue, adipose tissue, skeletal muscle or vascular structures. In the foot and ankle region, benign neoplasms and pseudo-tumoral soft tissue lesions are significantly more frequent than malignant tumours[2]. In the Siddha system of medicine, such conditions may be correlated with "*Thunmamisa kaddi*" as per the Tamil-English dictionary.

Siddhar *Aruvai Maruthuvam* classifies *Kattikal* into two types based on location and six types according to the *Dosha*[3]. Tamil-English dictionary by T.V. Sambasivam Pillai, mentioned that 20 types of *Kattigal*, among this *Thunmamisa kaddi* was included in this type[4].

Soft tissue lesions of the foot in pediatric patients often require surgical or long-term conventional management, which may be associated with recurrence, invasiveness, and functional limitations.

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In the Siddha system of medicine, such swellings closely correlate with *Thunmamisa kaddi*, described as a solid soft tissue mass arising due to derangement of *Pitham* and *Kapham*. Considering the chronic nature of the lesion, absence of bony involvement, and benign imaging findings, a non-invasive Siddha herbo-mineral approach was justified in this case. The selected internal medicines possess anti-inflammatory, antimicrobial, immunomodulatory, blood-purifying, and tissue-resolving properties, while external therapies such as *Uppu seelai*, *Kazharchi pattru*, and herbo-mineral *pattru* promote local resolution through absorption, scraping, and detoxifying actions. This holistic Siddha regimen aimed to reduce the lesion, alleviate pain, and restore mobility safely, thereby demonstrating its potential as an effective, child-friendly alternative in the management of *Thunmamisa kaddi*.

Case study

This is a retrospective, single-case analysis conducted through the review of the Bed Head Ticket (BHT) of a 9-year-old female patient admitted to the Inpatient Division of Siddha Teaching Hospital, Kaithady. Before the case recordings, the written consent obtained by the patient and from the parents also. All relevant clinical data including patient history, examination findings, diagnostic measurements, treatment protocols and outcome assessments were extracted from the BHT records. Internal and external treatments were documented as per physician notes.

A 9-year-old female student from Velanai, Jaffna, was admitted to the Inpatient Division of Siddha Teaching Hospital, Kaithady, with complaints of a soft tissue lesion on the dorsum of her left foot. The lesion was located between the 4^{th} and 5^{th} metatarsal bones. On examination, the lesion appeared hard, fixed, and tender, measuring 31.2 × 19.9 mm. The condition had persisted for the past one and a half years, resulting in significant discomfort and difficulty in walking.

Cyst description, physical examination and investigation

On inspection, a single oval-shaped cyst was observed on the dorsum of the left foot, specifically located between the 4th and 5th metatarsal bones. The lesion had a well-defined margin with a smooth surface, and the overlying skin appeared normal. On palpation, the cyst measured 31.2 mm × 19.9 mm, with a firm consistency. Tenderness was present, and the lesion was not fixed. The local temperature was warm.

On Investigations, an ultrasound scan (dated 20.12.2023) revealed a cystic lesion on the left foot dorsum in the subcutaneous area, measuring 2.7 × 1.5 cm, with internal vascularity. NCCT of the left foot on the same date showed a soft tissue density lesion in the interdigital space between the 4th and 5th metatarsal bones, extending to the dorsal aspect, measuring 1.1 × 1.7 cm. No periosteal reaction, bone erosion, or metallic foreign body was noted. Blood investigations showed CRP at 1.6 and ESR at 19.

Treatment protocol

The patient was managed following the traditional medicine line of treatment. On the first day, *Meni thailam* (10 ml) was administered at 10.00pm with warm water on an empty stomach as a laxative to initiate detoxification. On the second day, 50 ml of gingelly oil was applied over the entire body, followed by a warm water bath after 20 minutes to facilitate external oleation and improve circulation. From the third day onwards, internal medicines were administered for 24 days to support cyst reduction and healing (Table 1). Diet was restricted with hospital food for light, easily digestible *Pathiyam* diet.

Table 1: Internal medicines administered

Internal medicine from 3rd day to 28 days

Name of drug	Dose and duration	*Anupanam*
Kazharchi chooranam	1g twice in a day, after food	Honey
Parangipattai chooranam	1g twice in a day, after food	Honey
Ganthaga rasayanam	100mg twice in a day, after food	Milk
Serankottai nei	10drops twice in a day, after food	Milk

The external treatment involved cleansing the wound with saline water, followed by the application of *Uppu seelai* (salt-soaked gauze) for two hours daily. This was continued with the application of *Kazharchi pattru* for first three weeks. *Kazharchi pattru* ingredients include 30g of *Kazharchi chooranam* (prepared from *Caesalpinia bonduc*) mixed with an appropriate amount of egg white (Figure 1). The preparation involves grinding these ingredients together to form a smooth paste, which is then applied externally as a *pattru* on the affected area to aid healing and reduce inflammation[5].

Egg white ***Kazharchi* seeds**

Fig. 1: Composition of herbal ingredients in *Kazhatchi pattru* preparation

Finally, a herbo-mineral *pattru* was applied during the last week. Herbo-mineral *pattru* ingredients include 1 part each of *Kanthakal* (magnetic oxide of iron), *Kaavikkal* (red ochre), *Karuppu kollu* (*Macrotyloma uniflorum*), and *Puttu mann* (medicinal clay), along with with ¼ part of *Chukku* (*Zingiber officinale* - dry part) (Figure 2). These ingredients were finely ground and mixed with two egg whites to form a smooth paste, which was then applied externally as a *Pattru* over the affected area. This application helps to reduce inflammation and promotes faster healing of the affected area[6].

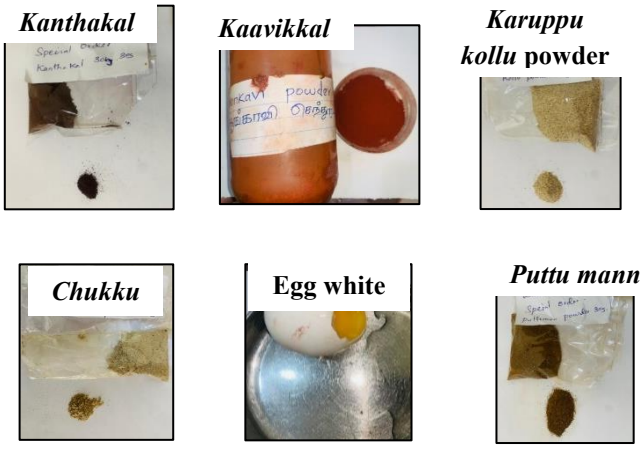

Fig. 2: Composition of herbal ingredients in herbo-mineral *Pattru* preparation

Results

Table 2 designate the measurements of the cyst size by weekly.

Table 2: Weekly cyst size measurements

Day	Length	Width	STTGS Score
2025.05.19 (Initial day)	31.2mm	19.9mm	IV
2025.05.26 (1st week)	27.5mm	19mm	III
2025.06.09 (2nd week)	20.8mm	16.4mm	III
2025.06.16 (3rd week)	19.6mm	13.6mm	II

2025.06.23 (4th week)	15.5mm	12.3mm	I


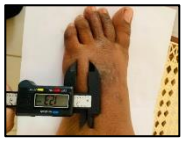

Figure 3 shows the wound images on follow up period

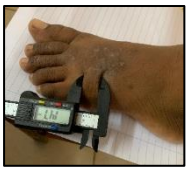


Fig. 3: Wound at 2025.07.23

Discussion

Kazhartchi chooranam possesses potent anti-inflammatory, analgesic, antimicrobial, antioxidant, and immunomodulatory actions, making it effective in reducing swelling, pain, and warmth in chronic soft tissue lesions. Its key constituents - bonducellin, caesalpinins, flavonoids, and fixed oils - help suppress inflammatory mediators, prevent infection, and promote tissue repair[7]. In Siddha terms, it aids in blood purification and correction of *Pitham* - *Kapham* imbalance, thereby facilitating healing in conditions like *Thunmamisa kaddi*.

Parangipattai chooranam is known for its anti-inflammatory, antimicrobial, antioxidant, detoxifying, and immunomodulatory properties. It is traditionally used in Siddha medicine for chronic skin and soft tissue conditions to reduce swelling, pain, and infection risk. Its key phytochemicals - saponins, flavonoids, resins, and essential oils - help purify the blood, neutralize toxins, and promote tissue regeneration[8]. In the context of *Thunmamisa kaddi*, it aids in clearing morbid humors (*Pitham*, *Kapham*), enhancing immunity, and supporting complete lesion healing.

Ganthaga rasayanam (purified sulphur-based formulation) exhibits anti-inflammatory, antimicrobial, antioxidant, and wound-healing properties. Sulphur acts as a potent antimicrobial agent, preventing secondary infections in chronic lesions, while also supporting tissue regeneration and reducing inflammation. It enhances circulation to the affected area, aiding in the resolution of swelling and pain[9]. In Siddha medicine, it is valued for blood purification and balancing deranged *Pitham* and *Kapham*, which is essential in managing *Thunmamisa kaddi*. Its rejuvenate nature strengthens immunity, helping to prevent recurrence of the lesion.

Serankottai nei (oil prepared from *Semecarpus anacardium*) is known for its strong anti-inflammatory, analgesic, antimicrobial, antioxidant, and immunomodulatory properties. It contains bioactive compounds such as bhilawanols, flavonoids, phenolic acids, and essential fatty acids, which reduce swelling, relieve pain, and promote tissue repair. In Siddha medicine, it is particularly valued for dissolving hard swellings, improving blood circulation, and clearing obstructions in affected tissues[10]. For *Thunmamisa kaddi*, it helps soften the lesion, control infection, and restore normal function of the foot while balancing aggravated *Pitham* and *Kapham.*

Uppu seelai is a traditional topical application used to shrink or soften localized swellings, abscesses, and certain types of tumors. When applied as a warm salt-soaked gauze over a lesion, it draws out excess fluid, reduces local *Kapham* accumulation, improves circulation, and promotes the breakdown of pathological tissue. The osmotic effect of salt dehydrates the abnormal growth, reduces edema, and can help alleviate pain. In addition, the mild antimicrobial action of salt prevents secondary infections at the site[11]. This method aligns with Siddha's principle of using localized therapies to balance aggravated humors and aid in resolution of solid swellings.

Kazharchi pattru (prepared from *Caesalpinia bonduc*) is used in Siddha medicine as an external application for hard swellings, glandular enlargements, and certain benign or malignant tumors. The plant contains active constituents like bonducin, caesalpin, and diterpenoids that exhibit anti-inflammatory, analgesic, antioxidant, and antiproliferative properties[12]. When applied as a poultice (*pattru*), it helps soften indurated masses, reduce inflammatory responses, and limit abnormal

cell proliferation. The astringent (*Thuvarppu*) nature aids in tissue contraction, while its detoxifying action supports the removal of accumulated morbid matter from the affected site. Modern pharmacological studies support its cytotoxic and antitumor potential, validating its role in traditional Siddha tumor management.

The herbo-mineral preparation containing *Kaanthakal, Kaavikkal, Karuppu kollu, Puttu mann, Sukku,* and Egg white acts synergistically to reduce tumor-like swellings such as *Thunmamisa kaddi*. *Kaanthakal* exerts anti-inflammatory and resolvent actions, helping to shrink and soften the hard lesion[13]. *Kaavikkal* provides an astringent and drying effect, reducing excess tissue fluids and supporting wound healing[14]. *Karuppu kollu* (*Macrotyloma uniflorum*) contributes anti-inflammatory, antioxidant, and lipolytic effects, aiding in dispersing hard swellings[15]. *Puttu mann* (Fuller's Earth) detoxifies, draws out inflammatory exudates, and cools the affected area[16]. *Chukku* (*Zingiber officinale*) improves local circulation with its anti-inflammatory and analgesic properties, enhancing absorption of the swelling[17]. Egg white acts as a binding agent and provides a proteinaceous base that supports tissue repair. Collectively, these ingredients reduce inflammation, soften the lesion, improve circulation, prevent infection, and balance deranged *Pitham* and *Kapham*, thereby promoting effective resolution of the swelling[18].

Conclusion

This research reflects that the herbal and herbo-mineral regimen are significantly effective in the management of *Thunmamisa kaddi* of foot and further scientific validation in larger population will be conducted in future.

Declaration of Informed consent

The authors certify that written informed consent has been obtained from the patient for the publication of this case report, including images and clinical information. It has been assured that the patient's identity will remain anonymous, with all efforts made to protect personal details from disclosure.

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None

Conflict of Interest

None

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Antibacterial activity of a traditional Ayurvedic polyherbal decoction against selected diarrheagenic and non-Diarrheagenic bacterial strains: An *in vitro* study

Munasinghe D.A.L.[1]* and Fernando S.[2]

Abstract

Diarrhea and dysentery remain major public health concerns worldwide, particularly in developing countries. Increasing antimicrobial resistance among enteric pathogens has reduced the effectiveness of conventional antibiotics and necessitated exploration of alternative therapeutic options. Traditional Ayurvedic polyherbal decoctions (*Kashaya*) are widely used in the management of gastrointestinal infections; however, scientific validation of their combined antibacterial efficacy remains limited. The objective of this study was to evaluate the *in vitro* antibacterial activity of a traditional Ayurvedic decoction containing *Plectranthus zeylanicus*, *Zingiber officinale*, *Piper longum*, *Syzygium aromaticum*, and *Trachyspermum ammi* against selected diarrheagenic, dysentery, and non-diarrheagenic bacterial strains. A freshly prepared decoction was evaluated against ten bacterial strains (five diarrheagenic and five non-diarrheagenic) using the agar well diffusion method on Mueller–Hinton agar. Bacterial inocula were standardized to 0.5 McFarland turbidity. Plates were incubated at 37°C for 24 hours, and antibacterial activity was assessed by measuring zones of inhibition. The results revealed that the decoction exhibited antibacterial activity against eight of the ten tested organisms. *Shigella sonnei*, *Shigella flexneri*, *Salmonella typhimurium*, enteropathogenic *Escherichia coli*, *Pseudomonas aeruginosa*, *Streptococcus saprophyticus*, *Enterococcus faecalis*, and *Streptococcus pneumoniae* were sensitive. *Staphylococcus aureus* and enterotoxigenic *Escherichia coli* showed resistant. No zones of inhibition were observed in control plates. The findings provide scientific evidence supporting the traditional use of this Ayurvedic decoction in the management of diarrhea and dysentery. Further quantitative and *in vivo* studies are recommended to determine its clinical applicability.

Keywords: Ayurveda, Polyherbal decoction, Antibacterial activity, Diarrhea, Medicinal plants

Introduction

Diarrheal diseases continue to be a leading cause of morbidity and mortality worldwide, particularly in developing countries. According to the World Health Organization, diarrhoeal disease remains a major contributor to global disease burden, especially among children under five years of age[1].

Bacterial pathogens such as *Escherichia coli*, *Shigella* spp., and *Salmonella* spp. are frequently implicated in diarrheal and dysenteric infections. The rapid emergence of antimicrobial resistance among enteric pathogens has significantly reduced the efficacy of conventional antibiotic therapy[2].

Ayurveda, the traditional system of medicine of India, utilizes polyherbal formulations for the management of gastrointestinal disorders such as *Atisara* (diarrhea) and *Pravahika* (dysentery). Decoctions (*Kashaya*) are aqueous extracts prepared by boiling medicinal plants and are valued for rapid therapeutic action[3]. Several medicinal plants commonly used in such formulations have demonstrated antimicrobial properties individually [4,8].

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However, limited scientific evidence exists regarding their combined antibacterial activity in traditional decoction form. Therefore, this study aimed to evaluate the antibacterial efficacy of a selected Ayurvedic polyherbal decoction against diarrheagenic and non-diarrheagenic bacteria under *in vitro* conditions.

Materials and Methods

Plant materials

Leaves of *Plectranthus zeylanicus* L., Rhizomes of *Zingiber officinale* Roscoe, fruit of *Piper longum* L., flower buds of *Syzygium aromaticum* (L.) Merr. & L.M. Perry and seeds of *Trachyspermum ammi* (L.) Sprague were used in the preparation of the decoction. All plant materials were purchased from a local herbal market in Sri Lanka. Botanical authentication was carried out by a qualified taxonomist at the Department of Botany, University of Sri Jayewardenepura. Voucher specimens of each plant were prepared and deposited at the Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura for future reference.

Preparation of plant materials

All plant materials were thoroughly washed with distilled water to remove debris and contaminants. The materials were then shade-dried at ambient temperature (approximately 25–30 °C) until a constant weight was achieved.

Preparation of decoction

The decoction was prepared under aseptic conditions at the Nawinna Ayurveda Research Institute by trained technical officers under the supervision of qualified Ayurvedic medical practitioners.

Equal quantities (12g each) of the dried plant materials were weighed, cleaned, and coarsely chopped. The combined plant mixture was placed in an earthenware pot and boiled with 1960mL of distilled water over moderate heat until the volume was reduced to 240mL, following the classical Ayurvedic method[3].

The resulting decoction was filtered through sterile muslin cloth to remove particulate matter. The filtrate was collected as the crude extract and stored in clean amber-colored glass bottles at 4 °C (refrigerator) until further use.

Bacterial strains

Below mentioned diarrheagenic and non-diarrheagenic bacteria were used to *in vitro* study.

Diarrheagenic bacteria

- Enterotoxigenic *Escherichia coli* (ETEC)
- Enteropathogenic *Escherichia coli* (EPEC)
- *Shigella sonnei*
- *Shigella flexneri*
- *Salmonella typhimurium*

Non-diarrheagenic bacteria

- *Pseudomonas aeruginosa*
- *Streptococcus saprophyticus*
- *Enterococcus faecalis*
- *Streptococcus pneumoniae*
- *Staphylococcus aureus*

Culture medium

Mueller–Hinton agar was prepared and sterilized at 121°C for 15 minutes.

Preparation of inoculum

Bacterial suspensions were adjusted to 0.5 McFarland standard.

Antibacterial Assay

The agar well diffusion method was performed. Wells (6 mm diameter) were filled with freshly prepared decoction. Ciprofloxacin (10 µg/mL) served as the positive control, while Sterile normal saline served as the negative control. All the test were triplicated. Plates were incubated at 37°C for 24 hours. Zones of inhibition were recorded in millimeters.

Results

The decoction demonstrated antibacterial activity against eight of ten tested organisms (Table 1). The sensitive organisms were: *Shigella sonnei, Shigella flexneri, Salmonella typhimurium, Enteropathogenic E. coli, Pseudomonas aeruginosa, Streptococcus saprophyticus, Enterococcus faecalis* and Streptococcus *pneumoniae*.

Table 1: Antibacterial activity of plant decoction against selected bacterial strains (agar well diffusion assay)

Organism	Decoction (mm)	Positive control (mm)	Negative control (mm)	Interpretation
Shigella sonnei	14.0 ± 0.6	26.2 ± 0.9	0	Sensitive
Shigella flexneri	15.1 ± 0.6	27.3 ± 1.6	0	Sensitive
Salmonella typhimurium	14.1± 0.5	25.0± 1.1	0	Sensitive
Enteropathogenic *E. coli*	13.2 ± 0.7	24.4± 1.2	0	Sensitive
Pseudomonas aeruginosa	12.3± 0.6	22.0± 1.5	0	Sensitive
Streptococcus saprophyticus	15.4± 0.8	24.2± 1.4	0	Sensitive
Enterococcus faecalis	14.4± 0.6	20.3± 0.9	0	Sensitive
Streptococcus pneumoniae	15.1± 0.6	23.5± 1.4	0	Sensitive
Staphylococcus aureus	0	21.4± 1.8	0	Resistant
Enterotoxigenic *E. coli*	0	24.2± 1.9	0	Resistant

No inhibition was observed in negative control plates. All tested bacterial strains demonstrated susceptibility to ciprofloxacin (10 µg/mL), as evidenced by clear zones of inhibition.

Discussion

The present findings demonstrate broad-spectrum antibacterial activity of the tested polyherbal decoction. Sensitivity of *Shigella* spp., *Salmonella typhimurium*, and EPEC supports its traditional use in diarrhea and dysentery management.

The antimicrobial activity may be attributed to synergistic phytoconstituents. *Zingiber officinale* contains gingerols and shogaols[4]. *Piper longum* contains piperine, known for antibacterial and bioavailability-enhancing effects[5,6]. *Syzygium aromaticum* is rich in eugenol[7], and *Trachyspermum ammi* contains thymol[8].

Resistance observed in *Staphylococcus aureus* and ETEC suggests possible intrinsic resistance mechanisms and highlights the need for minimum inhibitory concentration (MIC) studies and phytochemical analysis.

Conclusion

This study provides preliminary scientific validation for a traditional Ayurvedic decoction used in the management of diarrhea and dysentery. The formulation exhibited antibacterial activity against a majority of tested pathogens. Further quantitative, phytochemical, and in vivo studies are recommended to establish clinical efficacy.

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A review on the therapeutic potential of *Madhukadi charmalepa* in managing hyperandrogenism-associated dermatological manifestations of Polycystic Ovary Syndrome

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Abstract

Polycystic ovary syndrome (PCOS) is a metabolic, reproductive, and psychological disorder affecting 6–20% of reproductive-age women world wide. Hirsutism, Acne, and Acanthosis nigricans are common hyperandrogenism features in PCOS that significantly impact the mental health and well-being of young women. In Ayurveda, this condition correlates with *Arthava kshaya* according to *Susrutha Acharya* and *Pushpagni Jathaharani* according to *Kasyapa Samhitha*. This comprehensive review analyzes the pharmacological properties of the ingredients in *Madhukadi charmalepa*, a traditional Ayurvedic formulation used at the National Ayurveda Hospital, Borella, to treat the hyperandrogenic features of PCOS. The components of *Madhukadi charmalepa* include *Nelumbo nucifera, Terminalia chebula*, *Santalum album, Coscinium fenestratum, Glycyrrhiza glabra, Curcuma zedoaria* and bee honey. Relevant literature was sourced from PubMed, Google Scholar, and classical Ayurvedic texts, with inclusion criteria focusing on research published between 2015 to June 2025.The findings indicate that these ingredients exhibit potent pharmacological properties, including anti-inflammatory, antioxidant, anti-acne, anti-androgenic, and skin rejuvenating effects. Specific biological actions such as estrogenic and androgen-suppressing properties, wound healing, collagen-enhancement, and antimicrobial activity contribute to alleviating PCOS related dermatological symptoms. Ayurvedic attributes such as *Tridoshaghna, Kustaghna, Varnya,* and *Rasayana* further support the formulation's efficacy. The review concludes that the ingredients of *Madhukadi charmalepa* possess the potential to counteract facial hyperandrogenism in PCOS patients. A clinical study is recommended to scientifically validate these findings.

Keywords: *Madhukadi charmalepa*, Ayurveda properties Hyperandrogenism, pharmacological properties, PCOS

Introduction

Polycystic Ovary Syndrome (PCOS) is a common heterogeneous endocrine and metabolic disorder affecting women of reproductive age[1]. According to the Rotterdam criteria, it's cardinal signs include reproductive dysfunction and dermatological manifestations, such as hirsutism (male-pattern hair growth), acne, and acanthosis nigricans[1]. These dermatologic features may provide early clinical clues to the recognition of PCOS, and treatment of these cutaneous conditions may improve the quality of life and psychological well-being. While various herbal remedies are currently being tested for hyperandrogenism, Ayurvedic medicine offers both internal and external interventions that have been utilized for over 3000 years to treat skin-related health issues.

The selected traditional external application "*Madhukadi charmalepa*" is already used in the

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Ayurveda National Hospital, Borella, for common facial skin conditions. Seven ingredients are included in this production and they are *Nelumbo nucifera*, *Terminalia chebula*, *Santalum album, Coscinium fenestratum, Glycyrrhiza glabra, Curcuma zedoaria* and bee honey. The primary objective of this study is to identify and analyze the pharmacological effects of ingredients in *Madhukadi charmalepa* on hyperandrogenic features associated with polycystic ovarian syndrome.

Materials and Methods

A comprehensive review was conducted to analyze the research proven pharmacological actions of six herbal ingredients and one animal product found in the *Madhukadi charmalepa* formula. Research articles published in ResearchGate, PubMed, Google Scholar and other open access search engines were reviewed. The Ayurvedic aspect of the review was conducted with the support of authentic classical Ayurvedic texts. In this comprehensive study, *in vitro, in vivo* and clinically proven pharmacological effects were explored. The search strategy utilized terms such as Pharmacological properties, Ayurvedic properties, therapeutic effect, acne, hirsutism, acanthosis nigricans.

All the published full research papers from 2015 to June 2025, written in English and studies focusing on the chemical constituents and biological activities of the ingredients in *Madhukadi Charmalepa*. Other than English, research articles were written in various other languages, research papers published prior to 2015, abstract-only papers, and journals with no full text available were excluded.

Results

Madukadi charmalepa consist six herbs which are abundantly available in Sri Lanka. Table 1 presents a concise overview of Ingredients used in *Madhukadi charmalepa*, including botanical name, family, corresponding Sinhala and Sanskrit names, Specific plant parts utilized and the formulation ratio. They are taken in dry form powdered and mix equal ratio to make the intervention. By mixing with bee's honey to formula is used as a face pack. Table 2 provide a detailed overview of the Ayurvedic attributes of the individual ingredients used in *Madhukadi Charmalepa*. *Rasa, Guna, Veerya, Vipaka, Prabhava* are key pharmacological parameters and the probable mode of action shown in table as found in the *Samhitha Granthas.* All ingredients contain phytochemicals, pharmacological activities on skin and enhance skin condition (Table 3). In Figure 1 the Ayurveda referenced pharmacological parameters and proven phytochemical and pharmacological activities are summarized.

Discussion

The integration of classical Ayurvedic principles with the clinical manifestations of PCOS provides a comprehensive framework for understanding its complex metabolic nature. In this study, PCOS is identified not merely as a reproductive disorder but as a systemic metabolic disease involving the deviation of the HPO axis, manifesting externally as a hirsutism, acne and acanthosis nigricans. The correlation of PCOS according to *Charaka Acharya*[1], *Susrutha Acharya*[3] and *Kasyapa Samhitha*[4] highlights the ancient recognition of amenorrhea coupled with abnormal hair growth.

From an Ayurvedic perspective[1], the pathogenesis begins with the vitiation of the *Tridosha, Dhatu* such as *Rasa, Raktha, Medas, Asthi,* and *Shukra*, which subsequently impairs-*Sanga* (Obstruction) of *Rasa, Raktha* and *Arthava vaha srotas*[5]. A critical finding in this discussion is the role of *Agni*. The failure of *Kayagni, Dathwagni*, and *Panchaboothagni* leads to a state of *Dhatu paka vishamatha*, where the transformation of tissue is incomplete. This results in a decrease in *Prasada bhaga* and an increase in *Kitta bhaga*. These metabolic wastes are analogous to modern free radicals, which accumulates in the Ovaries and Skin (*Adhisthana*), triggering the hyperandrogenic features of acne. hirsutism, acanthosis nigricans. According to Ayurveda, *Brajaka pitta* is found in the skin.

Table 1: **Botanical name, family, Sinhala and Sanskrit names, Specific plant parts utilized and the formulation ratio of the *Madukadi charmalepa***

Botanical name and Family	Sinhala name	Sanskrit name	Part used	Ratio
Terminalia chebula[19] Combretaceae	*Aralu*	*Hareethaki*	Powder of pericarp rind of mature fruit	1
Santalum album[20] Santalaceae	*Sudu hadun*	*Chandana*	Powder of heart wood	1
Coscinium fenestratum[10] Menispermaceae	*Venivelgeta*	*Daruharidra*	Powder of Stem	1
Glycyrrhiza glabra [9] Fabaceae	*Valmee*	*Maduka*	Root powder	2
Curcuma zedoaria[21] Zingiberaceae	*Harankaha*	*Bangura*	Rhizome powder	1:10
Nelumbo nucifera[17] Nelumbonaceae	*Nelum*	*Padma keshara*	Flower stamen	1:100
Bee Honey[22,23]	*Mee pani*	*Madhu*		3

Table 2: Ayurvedic pharmacological properties of ingredients of *Madhukadi charmalepa*

Ingredient	*Rasa*	*Guna*	*Veerya*	*Vipaka*	*Dosha karma*	*Prabhava*	Properties
Aralu[12]	*Kashaya, Katu, Amla*	*Laghu, Ruksha*	*Ushna*	*Madhura*	*Tridoshagna,* Sp in *Vata Shamana*		*Kushtaghna, Vayasthapan, Varanadi Gana*
Sudu Hadun[24]	*Tikta, Madhura*	*Laghu, Ruksha*	*Sheetha*	*Katu*	*Kapa Pitta Shamaka*		*Varnya, Charma roga nashaka, Krimigna, Rakta shodaka*
Venivelgeta[10]	*Tikta, Kahsaya*	*Ruksha, Lagu*	*Ushana*	*Katu*	*Kapavata shamaka*		*Kustagna, Vishahara, Rasayana*
Valmee[26]	*Madhura*	*Guru, Snigda*	*Sheetha*	*Madhura*	*Vata pitta shamaka*	*Medya*	*Varnya, Raktha shodaka, Asru doshahara, Vrana, Vishagna, Keshya,*
Harankaha[26]	*Katu, Tikta*	*Lagu, Thikshna*	*Ushna*	*Katu*	*Kapa vata shamaka*		*Kustagna, Krimigna, Raktha shodaka*
Nelum Renu[27]	*Kashaya, Madhura, Tikta*	*Guru, Snigda*	*Sheetha*	*Madhura*	*Kapha-Pitta shamaka*		*Vrushya, Grahi, Varnya, Garbha sthapaka*
Bee Honey[28]	*Madhura, Kashaya, Kashaya anurasa*	*Lugu, Ruksha, Yogavahi, Sukshma, Snigdha, Manda, Sheetha*	*Sheetha*	*Katu*	Aggravate V*ata,* Scraps *Kapa,* Pacifies *Pitta, Rakta,*		*Agnideepana, Varnya Lekhana, Shodhana, Ropana Prasadhana, Sukshma Marganusari, Vishaprashamana Medohara, Vishagna Kushtagna, Krimigna*

Table 3: Chemical composition, pharmacological properties and medicinal uses of ingredients of *Madhukadi charmalepa*

Ingredient	Chemical composition	Pharmacological properties	Medicinal Usage
Terminalia chebula[15]	Phenolic compound Hydrolysable Tannin, Corilagin, Flavonoid	Antioxidants, Anti-inflammatory Antibacterial, Analgesic, Anti-diabetic.	Skin hydration, elasticity, firmness, ,tone , rejuvenation theraphy[12]
Santalum album[20]	Santalol, Terpins, Fatty acids, Phenolics, Saponins, Phytosterols lignans, glycosides, triterpenoids, and sesquiterpenoids santalic acid, -curcumone, nuciferol	Antioxidant, Anti-inflammatory, Antibacterial, Antifungal, Antiviral, Antihyperglycemic, Antihyperlipidemic	Skin inflammation -irritation, Radiodermatitis[24]
Coscinium fenestratum[10]	Berberine, 2 benzylisoquinoline alkaloids, 3 aporphine alkaloids, 12 quaternary protoberberine alkaloids, cetyl-alcohol, saponin	Thermogenic, Anodyne, Anti-inflammatory, Depurative, Antiseptic, Febrifuge, Sudorific and Tonic, Wound Healing, Antiacne, Antioxidant[29]	Inflammation, wounds, ulcer, skin diseases
Glycyrrhiza glabra[9]	Glycyrrhizin: triterpenoid Saponin, Glycyrrhetinic Acid: Flavonoids: liquiritigenin, isoliquiritigenin, glabridin, Polysaccharides	Anti-inflammatory, Antioxidant, Anti-ulcerogenic, Anti-microbial, Anti-viral, Expectorant, Immuno-modulatory, Estrogenic	Adrenal Support Hormonal Imbalances inflammatory skin conditions Hair health[30]
Curcuma zedoaria[21]	Eurcumin, zingiberene, dihydrocurcumin, furanodiene , germacrone	Antioxidant, Antibacterial, Antimicrobial, Antitumor, Antifungal, Anti-ulcerogenic, Immunomodulatory, Wound healing, Anti-inflammatory	Skin diseases, Oxidation[26,31]
Nelumbo nucifera[17]	In Stamen- Glutathione Kaempferol, nelumboroside A, nelumboroside B isorhamnetin, glycosides, non-flavonoids arbutin, myo-inositol	Antioxidant, Antibacterial, Antifungal, Antiaging, Immunomodulatory, Anti-inflammatory. Anti-fertility, Anti-proliferative activity, Diuretic activity, Anti-fibrosis, Anti-obesity, Aphrodisiac[27]	male sexual disorders, cancer, syphilis, body heat imbalance, Rath pith condition, for stopping bleeding, Skin discoloration[27]
Bee Honey[23]	Polyphenols, Terpenoids, Glucosinolates, Alkaloids, Lignans, Saponins, Flavonoids Tannins, Enzymes, Glycosides Organic Acids, Volatile	Antibacterial, Anti-inflammatory, Antioxidant, Wound healing, Antimicrobial.	Eczema, dermatitis and skin diseases[8]

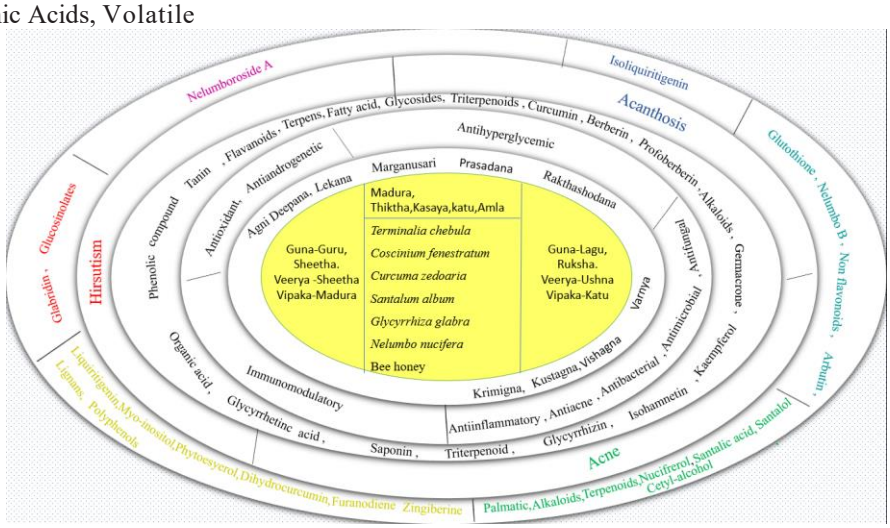

Fig.1: Ayurvedic pharmacological Properties, Proven Chemical Composition, pharmacological properties and medicinal uses of ingredients of *Madhukadi charmalepa*

Physiologically it contributes to the formation and maintenance of normal skin colour, regulation of temperature, smoothing of the skin, and the digestion and absorption of substances applied to the skin.

Maintaining *Varna* and *Ushma* is one of its fundamental purposes. Any deviation from *Bhrajaka Pitta*[6] will result in an individual's *Ushma* and *Varna* being improperly managed. One of *Pitta*'s seats is *Sweda. Sweda* is crucial for maintaining a healthy body temperature. The pigment melanin and the hormone MSH that the pituitary gland secretes are the primary factors that determine skin colour. Temperature is another factor that melanin influences. The choice of *Madhukadi charmalepa* as a tropical intervention targets the *Sthanika Shodhana, Amapachana, Agnideepana*. The efficacy of *Lepa*[7] can be attributed to the synergistic action of its ingredients. The predominance of *Kashaya, Madhura*, and *Tikta rasa* effectively pacifies the aggravated *Pitta*, while the *Lagu* and *Ruksha guna* counteract the *Kapha* accumulation typical of PCOS. The inclusion of honey is vital, its *Yogavahi* and *Vyavayi*[8] properties ensure that the active herbal components penetrate the skin layers rapidly to stimulate local metabolism. For conditions like *Mukhadushika* and *Twak vaivarnya.* The *Lepa* acts as a *Rakta shodhaka*. By restoring *Sthanika dathvagni, Krimigna, Kustagna, Vishagna guna* reduced the acne vulgaris action, *Varnya, Prasadana, Rasayana, Vaysthapana guna* clears the normalization of skin color and reduction of androgen driven hair growth.

The management of hyperandrogenism features in PCOS requires a multi targeted approach, as the condition manifests through complex interrelated pathways involving hormonal imbalances, insulin resistance and chronic inflammation. The phytochemical analysis of the seven ingredients in *Madhukadi charmalepa*, reveals a synergistic therapeutic action on hyperandrogenism features. Hirsutism in PCOS is primarily driven by the overexposure of hair follicles to androgens. *G. glabra*[8] and *C. fenestratum*[10] exhibit significant anti androgenic properties. Specially licorice can reduce circulating androgen levels by blocking 17-Hydroxysteroid dehydrogenase (17HSD) and 17,20-lyase. The inhibition of the 5α,5β-reductase enzyme is critical, as it prevents the conversion of testosterone in to the more potent dihydrotestosterone. By blocking androgen receptors in the dermal pappilla cells, the formula reduces local androgen sensitivity. This leads to a modulation of the hair growth cycle, shortening the anagen phase and prolonging the telogen phase. Clinical application may reduce follicular miniaturization, gradually transforming coarse terminal hairs into finer vellus like hairs[11].

The efficacy of the formula against acne is attributed to its ability to target microbial overgrowth, excessive sebum production, and follicular keratinization. Standardized *T. chebula*[12] extract, containing high levels of chebulinic acid and chebulagic acid, provides a potent antioxidant environment that neutralizes reactive oxygen species.

Curcumin in *C. zedoaria*[13] acts as a multifaceted agent by inducing fibroblast differentiation and modulating cytokine levels, which effectively manage the inflammatory response in acne. Combined with the antibacterial and antifungal properties of propolis and the antimicrobial action of phenolic acids, the formula suppresses Cutibacterium acnes while promoting wound healing and skin barrier restoration. This multitargeted localized action is particularly beneficial for managing the persistent hormonally influenced acne seen in PCOS patients.

Acanthosis nigricans is often a cutaneous marker of insulin resistance. *C. fenestratum*[10], through its primary active alkaloid berberine, has been shown to improve insulin sensitivity and reduce circulating testosterone. The dermatological improvement of these dark, velvety plaques is further supported by the melanogenesis inhibiting effects of *G. glabra*[14] and *T. chebula*[15]. These herbs contain glycyrrhizin and gallic acid, which inhibit tyrosinase activity, the rate limiting enzyme in melanin production. Also reducing oxidative stress and regulating keratinocyte proliferation ,by the nelumboroside and glutathione of *N. nucifera*(16),the formula helps to restore skin integrity and lighten hyperpigmented areas, including solar lentigines and post inflammatory hyperpigmentation[17].

Beyond the management of PCOS symptoms, the formula offers significant preventive and restorative anti-aging benefits. The high concentration of hydrolysable tannins inhibits matrix metalloproteinases (MMP), the enzymes responsible for collagen degradation. By attenuating the formation of Advanced Glycation End-products (AGEs) and protecting the skin from UVB radiation damage, the formula prevents premature skin aging[18].

Conclusion

According to the findings of the review it shows the ingredients of the *Madhukadi charmalepa* contain the potential ability to act against the hyperandrogenic features of the face in PCOS cases. A clinical study is suggested to prove its significant action scientifically.

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Majoon-e-Baladur in the therapeutic management of *Falij* (paralysis): A review integrating Unani medicine and modern pharmacology

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Abstract

Falij (paralysis) is a debilitating neurological disorder characterized by loss of motor and sensory functions and represents a major global health burden. In Unani medicine, *Falij* is primarily attributed to *Balghami Ghair-Taba'i Madda*, leading to obstruction (*Sudda*) in neural pathways and impairment of *Rooh-e-Muharrik* and *Rooh-e-Hassas*. *Majoon-e-Baladur*, a classical polyherbal formulation, is traditionally used to restore nerve function, purify the brain, reduce inflammation, and enhance neuromuscular activity. This review aims to evaluate the therapeutic management of *Falij* using the classical Unani formulation *Majoon-e-Baladur* by integrating traditional concepts with modern pharmacological evidence. This narrative review analyzed classical Unani texts and contemporary scientific literature retrieved from PubMed, ScienceDirect, and Google Scholar between 2000 and 2025 combining terms such as "*Majoon-e-Baladur*," "*Falij*," "paralysis," and individual herb names. Key ingredients, including *Semecarpus anacardium*, *Withania somnifera*, *Anacyclus pyrethrum*, *Sesamum indicum*, *Zingiber officinale*, *Prunus amygdalus*, and *Crocus sativus*, demonstrated multi-target pharmacological actions. The findings indicate that *Majoon-e-Baladur* possesses neuroprotective, antioxidant, anti-inflammatory, nervine tonic, circulatory enhancing, and immunomodulatory properties. These actions collectively address the underlying pathophysiology of *Falij* as described in Unani medicine. The review concludes that *Majoon-e-Baladur* represents a rational, multi-targeted therapeutic option for paralysis, warranting further experimental and clinical validation.

Keywords: Ethnopharmacology, *Falij*, *Majoon e baladur*, Nervine tonic, Unani Medicine

Introduction

Neurological disorders are among the leading causes of long-term disability worldwide, with paralysis being one of the most debilitating manifestations.[1] Paralysis is clinically defined as a complete (plegia) or partial (paresis) loss of voluntary muscle function resulting from disruption of neural signal transmission between the central nervous system and muscles.[2]

Globally, over 100 million individuals are affected by paralysis-related conditions, primarily due to stroke, spinal cord injury, and neurodegenerative disorders. Annually, about 15 million individuals worldwide experience a stroke; of these, 5 million die, and another 5 million are left with permanent disability.[3] Paralysis is classified into various types, including hemiplegia, paraplegia, quadriplegia, and monoplegia. Common causes include cerebrovascular accidents or strokes,[4] thrombosis, embolism, spinal cord injury (SCI),[5] neurodegenerative disorders, autoimmune diseases such as multiple sclerosis and Guillain–Barré syndrome, traumatic brain injury, peripheral neuropathies, and cerebral palsy.[6]

Clinical manifestations of paralysis encompass loss of motor function, sensory disturbances such as numbness and tingling, chronic neuropathic pain, spasticity or flaccidity, bladder and bowel

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dysfunction, sexual dysfunction, cognitive impairment, psychological distress, cardiovascular instability, respiratory dysfunction, and susceptibility to pressure ulcers. Risk factors include hypertension, diabetes mellitus, dyslipidemia, cardiovascular disease, deep vein thrombosis (DVT), smoking, obesity, advanced age, and a family history of neurological disorders.[7]

Conventional medical management focuses primarily on pharmacological interventions such as antiplatelets, anticoagulants, antihypertensives, statins, muscle relaxants, anticholinergics, neuropathic pain medications, and corticosteroids, as well as surgical procedures, physiotherapy, occupational therapy, speech therapy, psychological counselling, neurorehabilitation, and advanced assistive technologies.[8] Despite advances in modern medicine, current management strategies largely focus on symptom control and functional compensation rather than neural regeneration. Long-term pharmacotherapy is often associated with adverse effects, and rehabilitation outcomes may plateau. These limitations have prompted interest in traditional medical systems such as Unani medicine, which offer holistic and multi-targeted therapeutic approaches.

Materials and Methods

This narrative review was designed to evaluate the therapeutic potential of *Majoon-e-Baladur* in the management of *Falij* by integrating classical Unani literature with modern scientific evidence. Classical Unani texts including *Al-Qanun fi al-Tibb*, *Khaza'in al-Adwiyah*, *Makhzan al-Mufradat wa al-Murakkabat*, and the *National Formulary of Unani Medicine (NFUM), Parts I–V* were reviewed. Electronic databases including PubMed, ScienceDirect, and Google Scholar were systematically searched for literature published between 2000 and 2025 using predefined keywords, such as "paralysis", "*Falij*", "Unani medicine", "*Majoon-e-Baladur*", "*Semecarpus anacardium*". Only peer-reviewed full-text articles relevant to neurological disorders, paralysis, neuroprotection, and ingredients of *Majoon-e-Baladur* were included. Duplicates, non-peer-reviewed sources, reports with unclear methodology, and irrelevant studies were excluded.

Unani medicine perspective of Falij

In Unani medicine, *Falij* refers to paralysis affecting one longitudinal half of the body and is characterized by impairment of *Quwwat-e-Muharrika* and *Quwwat-e-Hassas*. The condition arises from dysfunction of *Rooh-e-Muharrik* and *Rooh-e-Hassas*, primarily due to *Ihtibas-e-Rooh* and *Sue Mizaj*, with dominance of *Barid wa Ratab* temperament.[9]

Classical scholars such as Ibn Sina and Al-Razi attributed *Falij* to obstruction in neural pathways caused by cold, viscous phlegmatic matter (*Balgham*), which interferes with the flow of vital spirits.[10,11,12]

Etiology

Unani literature classifies the causes extensively, with the primary cause is obstruction (*Sudda*):

i. Internal obstruction by morbid matter (*Maddah*): The most frequent reason is the descent of cold, viscous, and thick phlegmatic (*Balghami Akhlath*) matter from the brain into the nerves, obstructing the passageways.
ii. Inflammation (*Waram*): Physical blockage may result from inflammation in the brain or nerves.
iii. Trauma: Leads to damages or compresses the nerves.
iv. Structural problems include vertebral inclination or deviation, which can compress nerves.
v. *Buhran* (Crisis): In acute illnesses such as apoplexy, epilepsy, or high fever, *falij* may follow a crisis in which the body's faculty (*Tabiyat*) directs morbid matter toward the nerves.

Pathophysiology

Falij is fundamentally caused by *Sudda* (obstruction) within the passages of the nerves (*Asab*), cerebral ventricles (*Butoon-e-Dimagh*), and vascular channels (*Sharain wa Auradha*). This obstruction is

predominantly composed of *Ghaleez wa Luzj Balgham* (thick, cold, viscous phlegmatic matter), which arrests the penetration and transmission of *Rooh-e-Muharrik* and *Rooh-e-Hassas*.[9] The dominant pathological temperament is *Barid wa Ratab* (cold and moist), which counteracts *Hararat-e-Ghariziyya*, resulting in neuromuscular weakness, sensory loss, and motor paralysis.

Pathophysiologically, *Falij* represents a multi-level failure within the *Al-Quwa al-Nafsaniyah* (psychic faculties). The primary deficit lies in the *Al-Quwa al-Muharrikah* (motor faculties), but it also involves higher cognitive faculties such as *Al-Quwat al-Wahmiyah* (thought), *Quwat al-Azimah* (decision), and perceptual faculties like *Quwat al-Lams* (tactile sensation), explaining accompanying sensory loss.[13,14] This disruption isolates the motor apparatus from cognitive control, impairing voluntary movement initiation and execution.[15-17] Clinically, this manifests as *Falij-e-Nisfi* (hemiplegia), *Falij-e-Asfal* (paraplegia), and *Falij-e-Laqwa* (facial palsy).[18] Unani management of *Falij* emphasizes *Izala-e-Sabab* (removal of cause), *Tanqia-e-Madda* (evacuation of morbid matter), *Ta'deel-e-Mizaj* (normalization of temperament), and *Taqwiyat-e-A'sab* (strengthening of nerves).[19,20] *Majoon-e-Baladur* is specifically formulated to address these mechanisms through deobstruent, nervine tonic, and neuro-stimulant actions (Figure 1).

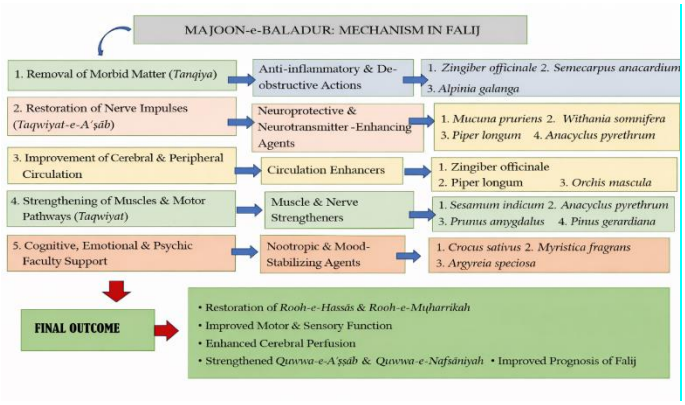

Fig.1: Pathophysiology of *Falij*

Method of preparation of Majoon e Baladur (MB)

Use ingredients of pharmacopeial quality. Clean, dry, and grind ingredients (Table 1, numbers 1 to 4 and 16) separately, then sift through a sieve number 60. Clean, dry, and grind ingredients 5 to 15 and 17 to 19, then sift through a sieve number 80. Take the necessary amount of *Asal* (Honey), boil it over low heat, and strain through muslin cloth; set aside. Dissolve the required amount of sugar in purified water, heat gently to achieve 77-78% consistency (*Qiwam*), and strain through muslin cloth. Combine the strained honey with the prepared *Qiwam,* mix well over low heat, then remove from heat. While still hot, add the powder of ingredient 13 along with 0.1% sodium benzoate and stir thoroughly. Add the coarse powders of ingredients 1 to 4 and 16, mix well, then gradually incorporate the fine powders of ingredients 5 to 15 and 17 to 19, mixing thoroughly to achieve a homogeneous product. Allow the mixture to cool to room temperature. Pack into tightly sealed containers protected from light and moisture.[21]

Therapeutic actions and indications

MB has various effects and uses as shown in (Table 3), mainly in treating neurological disorders.[21]

Dose and administration

MB is administered based on the condition, typically 5-10 g orally with water twice daily after meals.[21]

Results and Discussion

Management of Falij

The findings of this review demonstrates that *Majoon-e-Baladur* employs a multi-targeted therapeutic strategy aligned with the Unani management principles of *Falij*. The phytochemicals identified in Table 2 categorized into alkaloids, flavonoids, phenolics, terpenoids, and sterols exhibit pharmacological properties summarized in Table 3, including antioxidant, anti-inflammatory, neuroprotective, dopaminergic-supporting, and adaptogenic effects. These actions directly correspond to the Unani therapeutic attributes presented in Table 4, such as *Muqawwi-e-A'sab*, *Mufatteh-e-Sudda*, *Muhallil*, and *Munaqqi-e-Dimagh*.

The predominance of hot and dry temperament drugs in the formulation strategically counteracts the cold and moist (*Barid wa Ratab*) imbalance characteristic of *Balghami Falij*. Nutrient rich ingredients such as *Prunus amygdalus* and *Pinus gerardiana* provide

essential lipids and proteins necessary for neuronal membrane repair and myelin regeneration. Collectively, the findings confirm that the main and sub-objectives of the study namely, correlating Unani principles with modern pharmacology and evaluating the therapeutic rationale of *Majoon-e-Baladur* have been successfully achieved.

Table 1: Ingredients of *Majoon e Baladur* [21, 22]

Ingredients/ Tibbi Names	Botanical names	Parts used	Quantity
Kunjad	*Sesamum indicum Linn.*	Seed	30g
Maghz e Tukhm-e Baladur	*Semecarpus anacardium Linn.*	Kernel	30 g
Maghz-e-Badam	*Prunus amygdalus*	Kernel	30 g
Maghz-e-Chilghoza	*Pinus gerardiana Wall.*	Kernel	30 g
Asgand	*Withania somnifera Dunal.*	Root	30g
Aaqarqarha	*Anacyclus pyrethrum DC.*	Root	30 g
Khulanjan	*Alpinia galanga Willd.*	Rhizome	30 g
Bisbasa	*Myristica fragrans Houtt.*	Mace, Aril	30 g
Jauzbuwa	*Myristica fragrans Houtt.*	Kernel	20 g
Zanjabeel	*Zingiber officinale Roxb.*	Rhizome	20 g
Salab Misri	*Orchis mascula Linn.*	Tuber	20 g
Filfil Daraz	*Piper longum Linn.*	Fruit	15 g
Mastagi	*Pistacia lentiscus Linn.*	Resin	15g
Tukhm-e-Halyun	*Asparagus officinalis Linn.*	Seed	15 g
Tukhm-e-Gazar	*Daucus carota Linn.*	Seed	10g
Tukhm-e-Anjara	*Ficus carica Linn.*	Seed	10 g
Tukhm-e-Konch	*Mucuna prurita (L.) Hook.*	Seed	10g
Zafran	*Crocus sativus Linn.*	Style/ Stigma	10g
Samundar Sokh	*Argyreia speciosa Linn.*	Root	5 g
Qand Safaid	*Saccharum officimarum, Linn.*	Crystals	375 g
Asal	*Apis mellifera.Linn*	-	1 Kg

Table 2: Phytochemicals of ingredients of the *Majoon e Baladur*

Scientific Names of Ingredients	Phytochemicals	References
Sesamum indicum Linn.	Phenolics (Lignans, Sesamin, Sesamolin, Sesamol), Phyto Sterols	23,24,48
Semecarpus anacardium Linn.	Flavanoids (Biflavanoids, Amentoflavone Tetrahydroamentoflavone), Phenolics (Bhilwanol, anacardic acid, and semicarpol), Terpenoids, β-Sitosterol, Cardol.	25,26,27
Prunus amygdalus	Flavanoids (Catechin, Epicatechin, Procyanidins, Kaempferol, Quercetin, Isorhamnetin, Naringenin), Polyphenols (Gallic, Caffeic, Ferulic, etc.), sterols, Vitamin E, Anthocyanidins, Cyanogenic glycosides, Triterpenes	28,54
Pinus gerardiana Wall.	Phenolic compounds, Pinolenic acid, Tocopherols	29
Withania somnifera Dunal.	Alkaloids (Withanine, Somniferine, Anaferine, etc.), Terpenes (Withanolides (Withaferin A), Terpenoids), Fatty acids (Stearic, Palmitic, Linoleic acids), Withanic acid.	30
Anacyclus pyrethrum DC.	Alkaloids (Pellitorine, Anacycline, etc), Flavanoids (Quercetin and luteolin,), Phenolics, Tannins, Terpenes (pyrethrin and inulin), Steroids, Isovaleric acid, Phenanthrenes, Saponins	31,32,50,51
Alpinia galanga Willd.	Flavanoids (Quercetin, Galangin, Kaempferol), Phenolics (Phenylpropanoids), Terpenoids, β-Sitosterol, 1′-Acetoxychavicol acetate, Galanols	33,52,76
Myristica fragrans Houtt.	Neolignans, Phenolics, Terpenoids, Sterols (Sitosterol, Campesterol, Desmosterol, Lanosterol), Myristicin, Macelignan, Volatile oils	34,35
Zingiber officinale Roxb.	Phenols (Gingerols, Shogaols, Paradols), Terpenoids, Zingerone	36,55
Orchis mascula Linn.	Alkaloids (Berberine), Phenolics (Tannins, Phenolics), Terpenes, β-Sitosterol, Saponins	37
Piper longum Linn.	Alkaloids (Piperine, Piperlongumine), Essential oils	26,38,58
Pistacia lentiscus Linn.	Tannins, Phenolics, Essential oil (mono- & sesquiterpenes), Triterpenoids, Saponins	39,40,41
Asparagus officinalis Linn.	Alkaloids (Asparagine), Flavanoids (Rutin, Quercetin, Kaempferol glycosides), Steroidal saponins, Tannins, Resin, Vitamin B	42
Daucus carota Linn.	Alkaloids (Pyridine derivatives), Flavanoids (Quercetin, Kaempferol), Phenolics (Coumarins), Terpenoids, Essential oils	43,99

Ficus carica Linn.	Flavanoids (Luteolin, Quercetin), Phenolic acids, Caffeoylquinic acids, β-Sitosterol, Cyanidin-3-rhamnoglucoside, Volatiles	44,62
Mucuna prurita (L.) Hook.	Phenolics (L-DOPA), Unsaturated fatty acids, Protein, Fiber, Saponins, Lecithin	45
Crocus sativus Linn.	Terpenes (Crocin (Crocetin), Picrocrocin, Safranal)	46,63
Argyreia speciosa Linn.	Alkaloids (Ergometrine, Ergoline alkaloids), Flavanoids (Quercetin, Kaempferol), Phenolics (Caffeic acid, Ethyl caffeate), Sterols, Coumarin gylycosides	47,64,65

Table 3: Pharmacological properties of ingredients of *Majoon e Baladur*

Scientific Name	Antioxidant	Anti-inflammatory	Neuroprotective/ CNS effects/ Nervine tonic	Protect Dopaminergic neurons	Astringent	Analgesic/ Musculoskeletal tonic/Muscle relaxant	Cardiovascular effects	Gastro-hepatic/digestive	Cholesterol lowering	Nutritive	Immune modulatory/ Adaptogenic
Sesamum indicum Linn.[23,24]	+	+	+	-	-	+	+	-	+	+	-
Semecarpus anacardium Linn.[25,26,27]	+	+	+	+	-	-	-	-	-	-	+
Prunus amygdalus[28]	+	+	+	-	-	-	+	-	+	-	-
Pinus gerardiana Wall. [29]	-	-	+	-	-	-	-	-	+	+	-
Withania somnifera Dunal.[30]	+	+	+	-	-	+	-	-	-	-	+
(*Anacyclus pyrethrum* L.)[31,32]	+	-	+	-	-	+	+	-	+	-	+
Alpinia galanga[33]	+	+	+	-	-	+	-	-	-	-	+
Myristica fragrans Houtt [34,35]	+	+	+	-	-	+	+	+	+	-	-
Zingiber officinale [36]	+	+	+	-	-	+	+	-	-	-	+
Orchis mascula Linn.[37]	-	-	-	-	-	-	+	-	+	-	-
Piper longum Linn.[26,38]	+	+	+	-	-	+	+	-	+	-	-
Pistacia lentiscus Linn.[39,40,41]	-	-	-	-	+	-	-	+	+	-	-
Asparagus officinalis Linn.[42]	+	+	-	-	-	-	-	-	-	+	+
Daucus carota Linn.[43]	+	-	-	-	-	-	-	+	-	+	-
Ficus carica Linn.[44]	+	+	+	-	-	-	-	-	+	-	-
Mucuna prurita (L.)[45]	-	+	+	-	-	+	-	+	-	-	-
Crocus sativus Linn.[46]	+	+	+	-	-	-	+	-	+	-	-
Argyreia speciosa Linn[47]	+	+	+	-	+	-	-	+	-	-	+

Table: 4 Scientific validation studies carried out on ingredients of *Majoon e Baladur* for treatment of *Falij* and Neurological weakness

Tibbi Name *Mizaj*/ Temperament	*Muqawwi e Az eraeesa* / Viscera tonic, *Muqawwi e Aam*/ General Tonic	*Muqawwi e A' sab*/ Nervine Tonic, *Muharrik* / Stimulant	*Muqawwi e Dimagh*/CNS or Brain tonic	*Mukhrij e Ruthubat wa Balgham*/ Evacuate morbid substances	*Muhallil*/ Anti-inflammatory	*Musakkin*/ Sedative	*Dafe Tashannuj*/Antispasmodic	*Mufatteh*/Deobstruent	*Muqawwi-e- Gurdawa-Masana* /Strengthen the kidneys and bladder	*Musammin e Badam* /weight gain/ Restore Atrophy	Mujaffif/ Desiccant/ emollient	*Mughadhdhi* /Nutritive
Kunjad [21, 48] (Hot1^0 and Cold1^0)	+	-	-	-	+	+	+	+	+	+	-	+
Maghz e Tukhm-e Baladur [25,26] (Hot 3^0 and Dry 3^0)	+	+	+	+	+	-	+	-	-	-	-	-
Asgand [30,49] (Hot 3^0 and Dry 3^0)	+	+	+	-	+	+	-	+	-	-	-	-
Aaqarqarha [50,51] (Hot 3^0 and Dry 3^0)	+	+	+	+	-	-	-	-	-	-	-	-
Kulanjan [33, 52] (Hot^2 and Dry^2)	-	-	-	+	+	+	-	-	-	-	-	-
Maghz e badam [53, 54] (Hot and Moist1^0)	+	+	+	-	-	-	-	-	-	-	+	-
Zanjabeel [36,55] (Hot 3^0 and Dry 2^0)	+	-	+	+	+	-	-	-	-	-	+	-
Jauzbuwa [56] (Hot 2^0 and Dry 3^0) (Hot and Dry 2^0)	+	+	+	+	-	+	-	+	-	+	-	-
Salab misri [57] (Hot and Moist)	+	+	-	-	-	-	-	-	-	-	-	-
Filfil e daraz [38,58] (Hot 2^0 and Dry 2^0), (Hot3^0 and Dry 2^0)	+	+	-	-	+	-	-	+	-	-	-	+
Mastagi [26,59] (Hot2^0 and Dry 2^0)	+	-	-	-	-	-	-	-	-	-	-	+
Maghz-e-Chilghoza[29] (Hot 1^0 and Moist 1^0)	+	-	+	-	-	-	-	-	-	-	-	+
Tukhm-e-Halyun [60] (Hot 2^0 and Moist 2^0)	-	+	+	-	-	-	-	-	-	-	-	+
Tukhm-e-Gazar [43,61] (Hot2^0 and Dry 2^0)	-	-	-	+	-	-	-	+	-	-	+	-
Tukhm-e-Anjara [62] (Hot 1^0 and Moist 2^0) (Hot 2^0 and Moist 1^0)	-	-	-	-	+	-	+	-	-	-	-	+
Tukhm-e Konch [45] (Hot and Dry)	+	+	+	-	-	-	-	-	+	-	+	-
Zafran [46, 63] (Hot 2^0 and Dry 1^0)	+	+	+	-	-	-	+	-	-	-	-	-
Samundar sokh[64,65] (Hot and Dry)	-	+	-	-	+	+	+	-	-	-	+	+

The Unani formulation *Majoon-e-Baladur* has long been prescribed for *Falij* (paralysis) owing to its composite actions such as *Muharrik-e-Aʿṣab* (Nerve stimulant), *Muqawwi-e-Aʿṣab* (Nervine tonic), *Munaqqi-e-Dimagh* (Brain cleanser), *Muqawwi-e-Dimagh* (Brain tonic), *Muhallil* (Anti-inflammatory), *Mussakkin-e-Alam* (Analgesic), *Ḥabis al-Dam* (Anti-hemorrhagic), *Muqawwi-e-Qalb* (Cardioprotective), *Mudir* (Diuretic), *Mufattiḥ-e-Sudad* (Deobstruent), *Mustaḥi* (Appetizer), and *Tanqiya-e-Madda* (Evacuation of morbid matter). The therapeutic relevance of these actions becomes evident when correlated with modern pharmacology, as most constituents of *Majoon-e-Baladur* are now known to possess neuroprotective, antioxidant, anti-inflammatory, circulatory-enhancing, and nervine-regenerative activities. Together, these mechanisms

provide a holistic approach to improving motor and sensory deficits associated with paralysis.

Neuroprotective and Nervine-Tonic Constituents

Semecarpus anacardium (Maghz-e Tukhm-e-Baladur)

Maghz-e-Tukhm-e-Baladur is considered the chief ingredient of *Majoon-e-Baladur*. Its flavonoids and phenolic compounds exert potent antioxidant effects by reducing lipid peroxidation and Thiobarbituric Acid reactive substances (TBARS)[66], lowering protein carbonyl content[67], and elevating glutathione levels.[68] Importantly, *S. anacardium* downregulates caspase-9 and caspase-3, thereby preventing mitochondrial-mediated neuronal apoptosis.[27] In animal models of dopaminergic dysfunction, it delayed motor impairment and enhanced climbing ability[25], supporting its traditional role as a *Muqawwi-e-Aʿṣab*. These mechanistic findings demonstrate strong alignment between classical Unani concepts of strengthening the nerve essence and modern neuropharmacological evidence.

Withania somnifera (Asgand)

Withanolides and somniferine enhance adaptogenic resilience and reduce cortisol-mediated neuronal damage. [69] Its GABA-mimetic action[70] directly relates to the Unani concept of relieving *Sudda* by calming hyperexcitable nerves. Additionally, Withaferin-A suppresses neuroinflammation and modulates immune pathways, offering benefits in autoimmune paralysis such as multiple sclerosis.[30] Its mitochondrial-protective effects further support neuronal survival.[71]

Anacyclus pyrethrum (Aqarqarha)

Aqarqarha's alkylamides (pellitorine, anacycline, affinin) exhibit neuroprotective, pro-cholinergic, and antidepressant effects.[72,73] Its anti-inflammatory and analgesic actions[74] correspond to classical *Muhallil* and *Muskkin* actions. Its pungent volatile oils enhance local circulation[50,51] thereby supporting Unani principles of resolving *Balghami* obstruction. Traditional attributes such as *Munaqqi-e-Dimagh* and *Mushil-e-Balgham* are supported by these findings.[17,50,51]

Alpinia galanga (Kulanjan)

Key bioactive compounds such as ACA and galangin inhibit NF-κB activation, COX-2, and iNOS, reducing TNF-α, IL-1β, and IL-6.[75,76] This anti-inflammatory action protects neurons from secondary injury. *Kulanjan*'s analgesic and sodium-channel modulatory properties,[33] AChE inhibition,[77] and anti-apoptotic effects[78] further support neuromuscular recovery. Its immunostimulant effects strengthen systemic resistance.[79]

Phytochemical-Pharmacological-Therapeutic Integration in *Majoon-e-Baladur*

The comprehensive analysis of *Majoon-e-Baladur* through its phytochemical composition (Table 2), pharmacological properties (Table 3), and traditional Unani therapeutic qualities (Table 4) reveals a sophisticated multi-target therapeutic strategy for managing *Falij*. This integration demonstrates how the formulation's chemical constituents interpret into biological actions that align with classical Unani treatment principles.

Semecarpus anacardium (bhilwanol, anacardic acid) have potent anti-inflammatory and antioxidant properties that protect neural cells from oxidative damage, a major pathogenic mechanism in paralysis via Siddique *et al*. (2019) reported that these compounds reduce lipid peroxidation and downregulate caspase-3 and caspase-9, preventing neuronal apoptosis. This provides molecular validation for its primary role in *Majoon-e-Baladur* as *Muharrik-e-A'sab* (nerve stimulant) and *Muqawwi-e-Dimagh* (brain tonic).

Withania somnifera contains withanine and somniferine alkaloids Amrin Saiyed *et al*., 2016), which Kulkarni *et al*. (2008) showed exert GABA-mimetic actions. This pharmacological evidence substantiates its traditional classification as *Muqawwi-e-Dimagh* (brain tonic) and *Muqawwi-e-A'sab* (nervine tonic) in Unani medicine. For instance, the alkaloids found in *Piper longum* (piperine); Habib, 2024) and Hota *et al*. (2009)

demonstrated to protect neuronal mitochondria by modulating N-Methyl-D-Aspartate (NMDA) receptor mediated excitotoxicity. This aligns with its Unani designation as *Mufatteh* (deobstruent) and *Muqawwi-e-Aza-e-Raeesa* (viscera tonic), supporting its role in removing nervous obstructions.

Alkaloids of *Anacyclus pyrethrum* (pellitorine, anacycline) contribute to their neuroprotective and nervine stimulating properties. According to Afreen Usmani *et al*., (2016), which correlate with its classification as *Muqawwi-e-A'sab* (nervine tonic) and *Muharrik* (stimulant) in Table 4. Fahim *et al*. (2025) documented that these alkylamides exhibit pro-cholinergic and neuroprotective effects, providing scientific validation for its traditional use in nerve strengthening.

Similarly, the rich flavonoids and phenolic chemicals found in *Crocus sativus*, further Abe and Saito (2000), demonstrated that crocin enhances learning behavior and long-term potentiation, while Khalili and Hamzeh (2010) showed neuroprotective effects in Alzheimer's models. These findings validate its Unani classification as *Muqawwi-e-A'sab* and *Muqawwi-e-Aza-e-Raeesa*.

The formulation's chemical diversity enables it to concurrently target multiple pathways associated with brain injury, such as oxidative stress, inflammation, apoptosis, and dysregulation of neurotransmitters.

The traditional Unani therapeutic qualities mentioned in Table 4 exactly match the scientific pharmacological effects noted in Table 3. *Zingiber officinale*, classified as Hot 3^0 and Dry 2^0 in Table 4, contains gingerols and shogaols. Fatima *et al*., (2021) and Grzanna *et al*. (2005) demonstrated that these compounds inhibit cyclooxygenase (COX) and lipoxygenase (LOX) pathways, providing anti-inflammatory effects that scientifically validate its *Muhallil* (anti-inflammatory) action in Unani medicine. Rondanelli *et al*., 2020 stated that main phytochemicals, including gingerols, shogaols, and zingerone alleviate neuropathic and musculoskeletal pain by acting on both peripheral and central pain pathways.

Myristica fragrans has long been used as *Muhallil* (anti-inflammatory agents) due to their anti-inflammatory qualities. *Myristica fragrans* (Hot 2^0 and Dry 3^0) contains myristicin and macelignan. Wahab *et al*., (2009) and Zhang *et al*. (2016) showed that nutmeg oil alleviates chronic inflammatory pain through COX-2 inhibition, while Han *et al.* (2016) documented antiplatelet activity. These findings support its traditional use as *Muqawwi-e-A'sab* and *Mufatteh* (deobstruent).

Ingredients supporting neuro-muscular repair and systemic function

Sesamum indicum (Kunjad)

Sesame enhances GPx, SOD, and catalase, reducing oxidative stress.[80] Udomruk *et al*. (2021) demonstrates that in animal models, sesame oil and sesamin prevent leucocyte migration and paw edema. As a real *Mohallil*, it resolves the swelling and inflammation *(Sudda*) in nerve pathways by significantly lowering neuroinflammation, a major cause of secondary neurological injury in paralysis,[81] Sesame's anti-atherosclerotic and antihypertensive properties of sesamin, reduces the generation of vascular superoxide and enhances endothelial function. It improves circulation by lowering blood pressure and enhancing general cardiovascular health, [82] and muscle-strengthening nutrients [83] support rehabilitation in paralysis. Its analgesic effect comparable to ibuprofen [84] validates its use for neuropathic pain.

Prunus amygdalus (Badam)

Badam suspension significantly decreases serum levels of TC, TAG, LDL-C, and VLDL-C and increases HDL-**C** in experimentally induced hyperlipidemic mice, intensively reduce the risk of stroke [85] Further Ruchi Singh *et a*l (2022) reported that ethanolic and phenolic extracts of badam fruits exhibit remarkable anti oxidant, antiradical activities; this directly protects neural cells from oxidative degradation and offers antioxidant neuroprotection.[28] According to Abdullah *et al* (2017) its oleic acid and phospholipids restore neuronal membranes and myelin, aiding recovery in

demyelinating conditions such as Multiple Sclerosis.[54] This validates its traditional designation as *Musammin-e-Badan* for restoring atrophy in paralysis patients.

Zingiber officinale (Zanjabeel)

Gingerols and shogaols inhibit COX, LOX, and pro-inflammatory cytokines[86] and alleviate neuropathic pain.[87] Its cardioprotective and ACE inhibitory actions[88] improve overall systemic resilience in paralyzed patients.

Myristica fragrans (Jauzbuwa/Bisbasa)

Its anti-inflammatory and antioxidant myrifralignans [89] help reduce secondary injury after hemorrhage. Myristicin and macelignan exert anti-convulsant and neuroprotective effects.[34] Its antiplatelet activity[90] and cardiovascular modulation aid stroke prevention and recovery.

Orchis mascula (Salab Misri)

Salab Misri exhibits vasodilatory, antihypertensive, and anti-dyslipidemic effects,[91,92] contributing to stroke prevention. Its proposed calcium-channel blocking effect may reduce excitotoxic neuronal damage.[37]

Piper longum (Filfil Daraz)

Its bronchodilatory and anti-inflammatory actions prevent respiratory complications in spinal cord injury.[93] Piperine enhances bioavailability and protects neuronal mitochondria by modulating N-Methyl-D-Aspartate receptor complex (NMDA)-mediated excitotoxicity [94] and apoptosis. [95] Its gastrointestinal stimulant effects improve digestion in immobilized patients.

Pistacia lentiscus (Mastagi)

Mastagi's triterpenoids have anti-atherogenic and antioxidant effects via CD36 downregulation and glutathione restoration.[96] Its hepatoprotective[97] and gastroprotective actions[40] are essential for paralyzed patients prone to metabolic and stress-induced complications.

Asparagus officinalis (Tukhm-e-Halyun)

Steroidal saponins and flavonoids offer antioxidant and anti-inflammatory protection, while asparagine's diuretic action reduces CNS edema.[42] B-vitamins support myelin repairs, aligning with its Unani role as *Muqawwi-e-Dimagh*.

Daucus carota (Tukhm-e-Gazar)

Its diuretic, anti-urolithiatic, and antimicrobial actions prevent urinary complications common in immobilized patients.[43,92,99] Its hepatoprotective properties maintain metabolic stability.

Pinus gerardiana (Maghz-e-Chilghoza)

Certain polyunsaturated fatty acids (PUFAs), particularly pinolenic acid, are particularly abundant in chilgoza. Dietary PUFAs are immediately integrated into neuronal membranes, where they improve membrane fluidity, optimize synaptic receptor and ion channel function, and boost neurotransmitter activity, as demonstrated by fundamental studies. The hallmark of a nootropic drug is enhanced cognitive performance, which is caused by this biological action. Additionally, Chilgoza validating its use as a *Muqawwi-e-Dimagh*, that nutritionally heals brain tissue by supplying the vital lipids required to rebuild aging or damaged neuronal membranes.[29]

Ficus carica (Tukhm-e-Anjeer/Anjara)

Ficus carica's anti-platelet activity reduces ADP- and adrenaline-induced platelet aggregation [100], supporting prevention of thrombotic stroke. Its antispasmodic effect improves cerebral perfusion. [101] Additionally, ficin proteases may facilitate hemostasis by activating Factor X in hemorrhagic stroke,[102] showing its dual action in ischemic and hemorrhagic paralysis.

Mucuna pruriens (Tukhm-e-Konch)

Rich in L-DOPA, *Mucuna pruriens* replenishes dopaminergic pathways essential for motor function. [45] In Unani terms, this translates to restoring *Quwwat-e-Aʿṣab* and countering *Balghami* obstruction. *Mucuna pruriens* shows notable symptomic

improvement in cases of depressive illness and decreases anxiety and depression. It also possesses Central Nervous System (CNS) stimulant effect at low doses and CNS depressant effect at higher doses.

Crocus sativus (Zafran)

Crocin improves memory, synaptic plasticity, and potentiation.[103,104] Clinical trials confirm antidepressant efficacy.[105,106] Its anti-inflammatory and analgesic actions,[107] muscle relaxant properties [108] and circulatory enhancement[46] make it ideal for neurorehabilitation.

Argyreia speciosa (Samundar sokh)

Its anticonvulsant,[64] analgesic,[109] and antioxidant effects [65] help manage neuropathic symptoms and oxidative stress associated with paralysis.

The predominance of herbs with hot and dry temperaments in Table 4 (*Semecarpus anacardium*: (Hot 3°and Dry 3°); *Zingiber officinale*: (Hot 3°and Dry 2°) represents a deliberate therapeutic strategy to counteract the cold, moist (*Barid wa Ratab*) temperament imbalance characteristic of *Balghami Falij*. These herbs contain bioactive compounds (volatile oils, alkaloids, terpenoids) that stimulate circulation, warm the nervous system, and facilitate the evacuation of cold, viscous phlegmatic matter (*Tanqia-e-Madda*). The nutritive (*Mughadhdhi*) properties of ingredients like *Prunus amygdalus* and *Pinus gerardiana* provide essential lipids and proteins for neuronal repair and myelin regeneration, addressing the *Daf-e-A'sab* (nerve weakness) component of paralysis.

Conclusion

This review concludes that *Majoon-e-Baladur*, through its synergistic multi-herbal composition, offers a comprehensive therapeutic approach for the management of *Falij*. By addressing *Balghami Ghair-Taba'i Madda*, removing neural obstruction, normalizing temperament, and strengthening nervous function, the formulation aligns classical Unani wisdom with contemporary neuropharmacological mechanisms.

While the available evidence supports its therapeutic potential, further standardized experimental and clinical studies are essential to establish its role as a scientifically validated treatment option for paralysis.

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