

Pharmacological Analysis of Siddha Poly Herbal Formulation Lavangadhi Choornam - A Literature Review

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ABSTRACT

Lavangadhi Chooranam is a classical Siddha polyherbal formulation composed of 30 medicinal plants, widely used in the traditional Siddha system of medicine to treat conditions such as menstrual disturbances, diarrhoea, fever, excessive thirst, burning sensation, giddiness, hemorrhoids, cough, bronchial asthma, and menorrhagia. This review aims to explore the phytopharmacological significance of Lavangadhi Chooranam and its individual herbal components. A literature-based methodology was adopted using authentic Siddha texts and contemporary scientific databases including PubMed, Google Scholar, and ResearchGate. The study identified the botanical names, plant families, parts used, and key pharmacological actions and chemical constituents of each ingredient. Analysis revealed that the formulation predominantly includes plant parts such as roots, seeds, and fruits, with Piperaceae, Apiaceae, and Zingiberaceae being the most represented families. The ingredients exhibit various pharmacological activities including anti-inflammatory, antioxidant, antimicrobial, antipyretic, antidiabetic, analgesic, and anticancer effects. Chemical profiling highlighted the abundance of terpenes, flavonoids, alkaloids, tannins, and saponins. These compounds synergistically contribute to the formulation's therapeutic efficacy. This review provides scientific validation to the traditional use of Lavangadhi Chooranam and emphasizes the need for further experimental studies on its bioactive principles, pharmacokinetics, toxicity, and clinical efficacy.

Keywords: Lavangadhi chooranam, chooranam, Siddha poly herbal formulation.

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Introduction:

The Siddha system is one of the oldest traditional systems of medicine, primarily practiced in South India, especially Tamil Nadu. Rooted in Tamil culture, it is attributed to the Siddhars enlightened sages who developed this system through deep spiritual and medicinal knowledge. Siddha medicine is based on the concept that the human body is composed of five elements (Pancha Boothas). It also follows the Three Humors Theory (Mukkatram). Vatha (air and space) governs movement. Pitha (fire and water) governs digestion and metabolism. Kapha (water and earth) governs structure and stability(1). Health is achieved by maintaining the balance between these three

humors. Imbalance leads to disease. Choornam refers to a fine powder made from herbal ingredients, used internally or externally. These formulations are polyherbal, meaning they consist of multiple herbs carefully chosen for their synergistic therapeutic effects(2). Poly herbalism is a hallmark of Siddha medicine, where several herbs are combined to Enhance therapeutic effect and Minimize side effects. Target multiple pathways or symptoms. Each herb plays a specific role, some are main actives, while others enhance absorption or reduce toxicity. Herbs are central to Siddha medicine because They are natural, holistic, and often multi-functional. Many have antioxidant, anti-inflammatory, antimicrobial, and

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adaptogenic properties. They are used not just for treatment, but also for prevention and rejuvenation. Siddha considers the energetics of herbs such as taste (Suvai), potency (Gunam), and post-digestive effect (Pirivu) which influence their impact on the doshas (3). Traditional medicinal practices, which involve the use of medicinal plants and their natural formulations, are still widely embraced by diverse ethnic groups around the world. These remedies have long been used to prevent and manage both acute and chronic illnesses. Even with the rapid progress in modern medicine and technological advancements, a large portion of the global population continues to depend on traditional healing systems for their primary healthcare needs. Moreover, there is a steadily growing public interest in herbal medicines, as more people seek natural and alternative approaches to maintaining health and well-being. Lavangadhi chooranam is prepared as mentioned in Sikicha rathnadeepam with 30 ingredients. Lavangadhi Chooranam is practicing to treat Suthagavayu (menstrual disturbances), Bedhi (Diarrhoea), Suram (fever), Thaagam (Excessive thirst), Erichal (burning sensation in extremities), Irudhayaadaippu, Mayakkam (giddiness), Moolam (Hemorrhoids), Irumal (Cough), Iraippu (Bronchial asthma) Perumbadu (menorrhagia) (4). In Siddha medicine, certain herbs and formulations are known to possess multiple pharmacological actions. Polyherbal drugs, in particular, exhibit a wide range of therapeutic effects due to the synergistic properties of their components. Ancient Siddha texts document the use of these preparations for treating various ailments, often emphasizing the importance of administering them in specific vehicles and therapeutic doses tailored to the condition being treated.

Aim and objective

To analyze the phytopharmacological activity of Lavangadhi chooranam and its individual plants.

Materials and method

This is a literature study. The data were collected about Lavangadhi Chooranam and its ingredients from Siddha authentic text books from the library of Tamil university, Thanjavur and Dr. Ambedkar library, Anna hospital, Arumbakkam, Chennai and research publications Available In through the PubMed, Research gate and Google Scholar. These data were tabulated and analyzed.

Results and Discussion

BOTANICAL AND SELECTED VERNACULAR NAMES OF THE MEDICINAL INGREDIENTS

All thirty (30) ingredients of the L.C formulation were identified as herbal materials. These plant species, representing 20 different botanical families, have been documented as components used in the preparation of L.C and were selected for inclusion in this review. The botanical (scientific) names of these plants are standardized and recognized globally under the International Code of Botanical Nomenclature. Each botanical name is unique and refers to a specific plant species, ensuring clarity and consistency in identification. In contrast, common names can vary widely across languages, regions, and even within the same country, and may sometimes refer to multiple different plants. Therefore, the use of scientific names is essential for the accurate identification of ingredients. The scientific names, along with selected vernacular names of the individual plants, are summarized in the following section in **Table 1**.

Table 1: Scientific names, Family, Tamil Names and Part used of the Medicinal Ingredients

S. N O	Botanical Name			
1	<i>Syzygium aromaticum</i>	Myrtaceae	Kirambu	Flower
2	<i>Cinnamomum aromaticum</i>	Lauraceae	Lavanga pattai	Bark
3	<i>Anethum graveolens</i>	Apiaceae	Sadhakuppai	Fruits
4	<i>Bellis perennis</i>	Asteraceae	Magarapoo	Leaves
5	<i>Nigella sativa</i>	Ranunculaceae	Karunjeeragam	Seed
6	<i>Elettaria cardamomum</i>	Zingiberaceae	Elam	Seed
7	<i>Coriandrum sativum</i>	Apiaceae	Kothumalli	Fruit
8	<i>Cuminum cyminum</i>	Apiaceae	Seeragam	Seed
9	<i>Abies spectabilis</i>	Pineaceae	Thalisapathiri	Leaves
10	<i>Clerodendrum serratum</i>	Lamiaceae	Siruthekkur	Bark
11	<i>Piper longum</i>	Piperaceae	Thippilimoolam	Root
12	<i>Piper nigrum</i>	Piperaceae	Sevviyam	Root

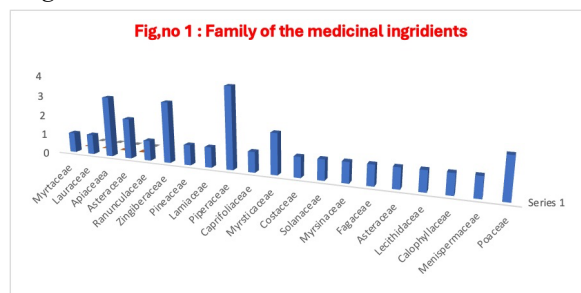
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13	<i>Nardostachys jatamanchil</i>	Caprifoliaceae	Jadaman chil	Root
14	<i>Myristica fragrans</i>	Myristicaceae	Sadhikka i	Fruit
15	<i>Myristica fragrans</i>	Myristicaceae	Sadhi pathiri	Aril
16	<i>Trachyspermum ammi</i>	Apiaceae	Omam	Seed
17	<i>Costus speciosus</i>	Costaceae	Koshtam	Root
18	<i>Hyoscyamus niger</i>	Solanaceae	Kurosani omam	Seed
19	<i>Embelica ribes</i>	Myrsinaceae	Vaivilan gam	Seeds
20	<i>Quercus infectoria</i>	Fagaceae	Masikkai	Galls
21	<i>Anacyclus pyrethrum</i>	Asteraceae	Akkirakaram	Root
22	<i>Barringtonia acutangula</i>	Lecithidaceae	Samuthir appazham	Root
23	<i>Mesua nagassarium</i>	Calophyllaceae	Sirunaga poo	Flower
24	<i>Alpinia officinarum</i>	Zingiberaceae	Arathai	Rhizome
25	<i>Zingiber officinale</i>	Zingiberaceae	Chukku	Rhizome
26	<i>Piper nigrum</i>	Piperaceae	Milagu	Fruit
27	<i>Piper longum</i>	Piperaceae	Thippili	Fruit
28	<i>Cissampelos pereira</i>	Menispermaceae	Ponmusuttai	Root
29	<i>Andropogon muricatus</i>	Poaceae	Vilamicham	Root
30	<i>Saccharin officinarum</i>	Poaceae	Sarkkara i	

Families of the medicinal ingredients:

Medicinal ingredients whether derived from plants, animals, or synthetic sources are often grouped into families based on their origin, structure, or therapeutic function. Understanding these families helps in identifying their properties, potential uses, and effects on human health. Many medicinal ingredients are sourced from plants, which are classified into botanical families. Plants within the same family often

share similar active compounds and healing properties. Families of the selected medicinal ingredients are shown in Figure 1. From these 30 ingredients, 4 (13.3%) of the species were found in *Piperaceae*, and 3 (10%) of the species were found in *Apiaceae* and *Zingiberaceae* families.



Parts of used of medicinal ingredients:

In herbal medicine, the therapeutic efficacy of a plant often depends on the specific part used, as each part may contain different active compounds. In the preparation of herbal formulations, the selection of the appropriate plant part is critical to ensure desired medicinal properties. The therapeutic value of plants is derived from a variety of their parts, such as roots, stems, bark, leaves, seeds, fruits, and flowers. Each plant part is known to contain unique bioactive compounds that contribute to its medicinal activity. In the case of Lavangadhi Chooranam, different plant parts are incorporated, as depicted in Figure 2. The review indicated that roots (27.7%) were the most frequently utilized, followed by seeds (20.7%) and dried fruits (17.2%). Other parts, including rhizomes, galls, flower buds, arils, leaves, and flowers, were also employed in the formulation.

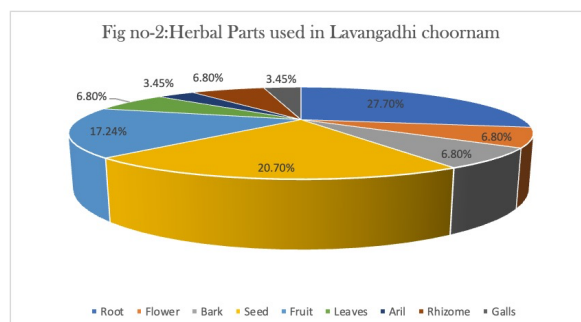


Table 2: Pharmacological actions of the Lavangadhi chooranam Ingredients:

S	Bo	
.	tan	
N	ica	
O	l	
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	me	
1	Syz	Antimicrobial, Antioxidant, Anti-Inflammatory, Analgesic, Anticancer,
	ygi	

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	<i>um aro ma tic um</i>	A Anesthetic . Aphrodisiac, And Antipyretic Activities.[5]
2	<i>Ci nn am om um aro ma tic um</i>	Antimicrobial Activity, Antioxidant Activity, Anti-Inflammatory Analgesic Activity, Antitumor Activity, Anti-Diabetic ,Anti-Obesity Activities, Immunoregulation Activity, Acaricidal Activities, Cardiovascular Protective Activity, Cytoprotective Activity, Neuroprotective Activity.[6]
3	<i>An eth em gra veo len s</i>	Antimicrobial, Anti-Inflammatory, Analgesic, Gastric Mucosalprotective And Antisecretory Effects.Hyperlipidaemic[7]
4	<i>Bel lis per en nis</i>	Antioxidative, Antimicrobial, Anticancerogenic, Wound Healing, Antidepressive, Anxiolytic, Nephroprotective.[8]
5	<i>Ni gel la sat iva</i>	Antioxidant, Antimicrobial, Anticancer, Anti-Inflammatory, Immunomodulatory, Cardioprotective, Antihypertensive, Antidiabetic, Lipid Profile[9]
6	<i>Ele tta ria car da mo mu m</i>	Antioxidant, Antidiabetic, Antibacterial, Anticancer, Gastro-Protective And Insecticidal Activities.[10]
7	<i>Co ria ndr um sat ivu m</i>	Hypolipidemic, Antioxidant, Antiatherogenic, Antihypertensive, And Antiarrhythmic[11].
8	<i>Cu mi nu m cy mi</i>	Anti Inflammatory, Antioxidant, Antimicrobial And Anticancer Activities[12]

	<i>nu m</i>	
9	<i>Abi es spe cta bili s</i>	Antianxiety, Antidepressant, Anti-Inflammatory, Antipyretic, Antifungal, Antiplatelet, Antispasmodic[13]
10	<i>Cle rod en dru m ser rat um</i>	Hepatoprotective, Antioxidant, Anti-Cancer, Antiinflammatory, Antinociceptive, Antipyretic ,Analgesic, Anti-Allergic, Antiasthmatic Antifertility Activities.[14]
11	<i>Pip er lon gu m</i>	Antimicrobial, Antiparasitic, Anthelmintic, Mosquito-Larvicidal, Antiinflammatory, Antipyretic ,Analgesic, Antioxidant, Anticancer, Antihyperglycaemic, Hepato-Protective, Antihyperlipidaemic, Antiangiogenic, Immunomodulatory, Antiarthritic, Antiulcer, Antiasthmatic, Cardioprotective[15]
12	<i>Pip er nig ru m</i>	Anti-Inflammatory, Antipyretic ,Analgesic, Anticonvulsant, And Neuroprotective [16]
13	<i>Na rdo sta chy s jat am an chi l</i>	Antifungal Activity, Hepatoprotective Activity, Anticonvulsant Activity, Neuroprotective Activity, Antiparkinson's Activity, Antioxidant Activity, Antidiabetic Activity, Antiestrogenic Activity Anti-Hypertensive, Anti-Arrhythmic, Anti-Asthmatic And Antibacterial Effects. [17]
14	<i>My rist ica fra gra ns fru it</i>	Anti-Oxidant And Anti-Allergic Activities, Antiinflammatory Activity[18]
15	<i>My rist ica fra</i>	Anticholinesterase And <i>A</i> -Glucosidase Inhibitory Activities And Antioxidant[19]

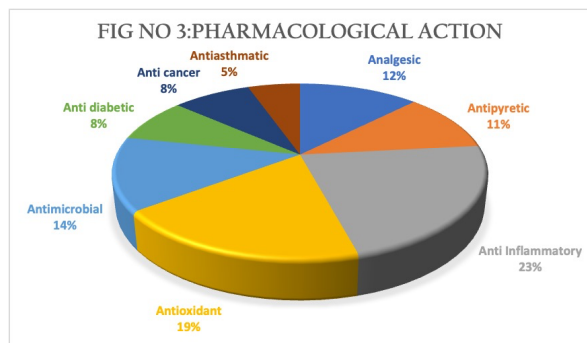
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	<i>grans</i>	
16	<i>Trachyspermum ammi</i>	Antimicrobial, Antihypertensive, Hepatoprotective, Antispasmodic, Broncho-Dilating, Antilithiasis, Diuretic, Abortifacient, Galactogogic, Antiplatelet-Aggregatory, Antiinflammatory, Antitussive, Antifilarial, Gestroprotective, Nematicidal, Anthelmintic.[20]
17	<i>Costus speciosus</i>	Antioxidant, Anti-Inflammatory, Anticancer, Anticholinesterase, Hepatoprotective, Diuretic, Estrogenic, Antispasmodic, Antifungal, And Antibacterial [21]
18	<i>Hyoscyamus niger</i>	Antispasmodic, Anticholinergic, Analgesic, Psychoactive, Hallucinogenic, Sedative, Anticonvulsant, Antioxidant, Anti-Inflammatory, Antipyretic[22]
19	<i>Embelica ribes</i>	Anthelmintic, Antibacterial, Antioxidant, Anti-Diabetic, Anticonvulsant, Anti-Cancer, Antihyperlipidemic, Antifungal, Molluscicidal, Wound Healing, Antifertility, Antihyperglycemic, Antitumor And Anti-Inflammatory[23]
20	<i>Quercus infectoria</i>	Analgesic, Antibacterial, Anti-Carcinogenic, Anti-Inflammatory, Antioxidant, Larvicidal And Wound Healing Effect[24]
21	<i>Acyclus pyrethrum</i>	Antioxidant, Anti-Inflammatory, Antipyretic, Analgesic , Anti-Epileptic Effects , Immunostimulatory Capabilities , And Insecticidal Activity[25]
22	<i>Barringtonia</i>	Antioxidant, Anti-Inflammatory And Antimicrobial[26]

	<i>utangular</i>	
23	<i>Mesua gasaria</i>	Antibacterial, Antioxidant, Hepatoprotective, Analgesic, Antivenom, Anticancer, Antiulcer, Anti-Inflammatory And Anti asthmatic Effects[27]
24	<i>Alpinia officinarum</i>	Anti-Gastric Ulcer, , Antioxidant Effect, Antibacterial, Antipyretic Anti-Inflammatory, And Analgesia[28]
25	<i>Zingiber officinale</i>	Anticancer, Antibacterial, Anti-Inflammatory, Antioxidant , Antiparasitic, Analgesic, Antipyretic Antiplatelet, Antiemetic, Antithrombotic, Antitumorigenic, Radioprotective, And Antifungal[29]
26	<i>Piper nigrum</i>	Antibacterial, Antipyretic, Anti-Inflammatory, Antifungal, And Preservative Properties[30]
27	<i>Piper longum</i>	Antimicrobial, Antioxidant, Antipyretic Antiinflammatory, Immunomodulatory , Hepatoprotective, Larvicidal, Anticancer, Antidiabetic.[31]
28	<i>Cissampelos perreira</i>	Antipyretic, Anti-Inflammatory, Antiarthritic, Antiulcer, Antidiabetic, Anticancer, Antifertility, Antimicrobial, Antioxidant, Antimalarial, And Immunomodulatory[32].
29	<i>Andropogon muricatus</i>	anti-inflammatory, antioxidant, mosquito-repelling, anticancer, hypoglycemic, antidepressant, antidiuretic, sedative, antifungal, and nervine properties.[33]

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30	Sanchinam	anti-inflammatory, analgesic, antihyperglycemic, diuretic, and hepatoprotective effects.[34]
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Pharmacological action of the medical ingredients:

The action of a drug refers to its functional effect on the body, such as analgesic, anti-inflammatory, antipyretic, antioxidant, antimicrobial, antidiabetic, or anticancer activity. The pharmacological actions of the medicinal ingredients used in Lavangadhi Choornam are summarized in Table 2. A single ingredient may exhibit multiple pharmacological activities. As illustrated in Figure 3, the distribution of actions among the ingredients includes anti-inflammatory (23%), antioxidant (19%), antipyretic (11%), analgesic (12%), antimicrobial (14%), antidiabetic (8%), anticancer (8%), and antiasthmatic (5%).

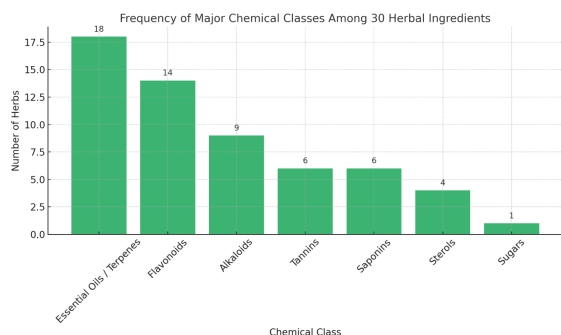
Table 3: Chemical constituents of the Lavangadhi chooranam Ingredients:

Scientific name	Part used	Major chemical constituents
<i>Syzygium aromaticum</i>	Flower bud	Eugenol (60–90 %), eugenol acetate, β -caryophyllene, α -humulene, flavonoids (quercetin, kaempferol), tannins (gallic acid derivatives)[35]
<i>Nigella sativa</i>	Seed	Thymoquinone (30–48 % of oil), thymohydroquinone, dithymoquinone, p-cymene, sabinene, carvacrol, 4-terpineol, α -hederin, kaempferol

		glycoside, longifolene, thymol[36]
<i>Piper longum</i>	Root/ Fruit	Alkaloids (piperine, piperlongumine, piperonaline, piperolactam), lignans, sterols, flavonoids, esters[37]
<i>Anethum graveolens</i>	Fruits (seeds)	Kaempferol, chlorogenic acid, rutin, thymol, p-cymene, phenolics[38]
<i>Bellis perennis</i>	Leaves	Saponins, flavonoids (apigenin), triterpenes, anthocyanins, polyphenols[39]
<i>Elettaria cardamomum</i>	Seed	1,8-Cineole, α -terpinyl acetate, limonene, flavonoids, alkaloids[40]
<i>Coriandrum sativum</i>	Fruit	Linalool, flavonoids, phenolics, sterols, fatty acids, carotenoids[41]
<i>Cuminum cyminum</i>	Seed	Cuminaldehyde, alkaloids, flavonoids, terpenoids, saponins, tannins[42]
<i>Abies spectabilis</i>	Leaves	Monoterpenes (α -pinene, limonene), sesquiterpenes[43]
<i>Clerodendrum serratum</i>	Bark	Saponins, flavonoids, sterols[44]
<i>Piper nigrum</i>	Root	Piperine, chavicine, essential oils[45]
<i>Nardostachys jatamansi</i>	Root	Jatamansone, nardol, valeranal, sesquiterpenes[46]
<i>Myristica fragrans</i>	Fruit	Myristicin, elemicin, safrole[47]
<i>Myristica fragrans</i>	Aril	Fixed oils, myristicin, lignans[48]
<i>Trachyspermum ammi</i>	Seed	Thymol, p-cymene, γ -terpinene[49]
<i>Costus speciosus</i>	Root	Diosgenin, saponins, β -sitosterol[50]
<i>Hyoscyamus niger</i>	Seed	Hyoscyamine, scopolamine, atropine[51]
<i>Embelica ribes</i>	Seeds	Embelin, flavonoids, phenolic acids[52]
<i>Quercus infectoria</i>	Galls	Tannins (50–70%), gallic acid, ellagic acid[53]

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Anacyclus pyrethrum	Root	Alkamides, sesquiterpene lactones, essential oils[54]
Barringtonia acutangula	Root	Triterpenoids, saponins, ellagic acid[55]
Mesua nagassarium	Flower	Essential oils, coumarins, flavonoids[56]
Alpinia officinarum	Rhizome	Galangin, kaempferide, alpinin[57]
Zingiber officinale	Rhizome	Gingerol, shogaol, zingerone[58]
Piper nigrum	Fruit	Piperine, chavicine, volatile oils[59]
Piper longum	Fruit	Piperlongumine, piperine, sesamin[60]
Cissampelos pareira	Root	Alkaloids (berberine, hayatinin), isoquinolines[61]
Andropogon muricatus	Root	Vetivone, khusimol, α -cedrene[62]
Saccharum officinarum	Stalk (used as sugar)	Sucrose, glucose, fructose, phenolic acids[63]



Chemical constituents of the Lavangadhi chooranam Ingredients are listed in Table -3. The effectiveness of an herbal formulation lies in the complex interplay of its chemical constituents. Essential Oils / Terpenes are the most common across the 30 herbs. Found in 18 plants, they contribute to flavor, aroma, and many therapeutic effects. Flavonoids come second and are key to antioxidant, cardioprotective, and anti-inflammatory effects. Alkaloids are present in 9 herbs—small in number but highly potent pharmacologically (e.g., piperine, hyoscyamine). Tannins and saponins are equally represented (6 herbs), often playing roles in wound healing and expectorant action. Sterols and sugars are the least common but still important in metabolism and immune balance. The high frequency of terpenes and

flavonoids suggests that antioxidant and anti-inflammatory activities are dominant in the formulation.

Conclusion *Lavangadhi chooranam (I.C)* is a Siddha poly herbal formulation and indicated for various diseases Suthagavayu (menstrual disturbances), Bedhi (Diarrhoea), Suram (fever), Thaagam (Excessive thirst), Erichal (burning sensation in extremities), Irudhaya adaippu, (Mayakkam (giddiness), Moolam (Hemorrhoids), Irumal (Cough), Iraippu (Bronchial asthma) Perumbadu (menorrhagia). This preliminary literature review provides valuable evidence regarding the medicinal ingredients commonly used in the preparation of Lavangadhi Chooranam for health management within Siddha medicine. However, further investigations are required to explore its chemical composition, elemental profile, qualitative and quantitative constituents, physicochemical properties, and potential toxic elements. In addition, more comprehensive scientific studies should be undertaken in the future to validate and substantiate its therapeutic applications.

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