

REVIEW ARTICLE

A Review on the Therapeutic Applications and Formulation of Kummati Mezhugu in Siddha Medicine

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ABSTRACT

Kummati Mezhugu is a classical herbo-mineral formulation in the Siddha system of medicine, traditionally employed for its hepatoprotective, anti-inflammatory, anti-cancer and gynecological therapeutic effects. The preparation involves a meticulous process where herbal juices—including Citrullus colocynthis, Citrus limon, Allium sativum, Vitex negundo, and Zingiber officinale—are combined and reduced to a semi-solid consistency. Subsequently, purified mineral and metallic ingredients such as Mercury (Rasam), Mercury Sulphide (Lingam), Pink Rock Salt (Indhuppu), Borax (Vengaaram), and Magnetic Oxide of Iron (Kaantham) are incorporated. The final product is administered orally, typically in doses ranging from 200 to 500 mg once daily for 3 to 5 days, accompanied by palm jaggery to enhance absorption and efficacy. Pharmacological studies of its ingredients attribute a range of therapeutic actions to Kummati Mezhugu, including hepatoprotective, antioxidant, anti-ulcer, and anticancer properties, owing to its diverse bioactive constituents. While traditional usage underscores its clinical relevance, further empirical research is warranted to substantiate its safety and efficacy within contemporary medical frameworks.

Keywords: Kummati Mezhugu, Citrullus colocynthis, Hepatoprotective drug, Siddha medicine.

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INTRODUCTION

The Siddha system of medicine, originating in South India, is among the oldest traditional medical systems. Rooted in Tamil culture, it emphasizes holistic health by maintaining balance among the five elements—earth, water, fire, air, and space—and the three humors: Vatha, Pitha, and Kapha. Disease is viewed as a result of imbalance among these elements and humors, and treatment aims to restore equilibrium through various therapeutic modalities [1]. The Siddha medicines are categorized into internal and external medicines, each comprising 32 types. Among the internal medicines, *Mezhugu* (medicated wax) holds a significant place due to its unique preparation methods and therapeutic applications [2, 3]. *Mezhugu* formulations are typically prepared by two methods one by grinding herbal and mineral ingredients with specific liquids, and another is prepared by heating the ingredients along with oily substances, resulting in a semi-solid consistency suitable for oral administration [2]. These preparations are known for their stability and prolonged shelf life, often extending up to five years. Kummati Mezhugu is a notable example of an Churukku Mezhugu (a type of Mezhugu obtained by heating treated), traditionally used for its hepatoprotective properties [3]. This formulation combines various herbal, metallic and mineral ingredients, meticulously processed to enhance their therapeutic efficacy. This article is aimed to review the ingredients of the formulation in accordance with their pharmacological actions.

MATERIAL AND METHODS

The information on Siddha herbomineral formulation was acquired from prehistoric Siddha books and by literature searching in electronic databases such as Science Direct, Pub Med, Pub Med Cochrane, Google-Scholar and other electronic databases using the keywords “Hepatoprotective”, “Antioxidant”, “Anti-inflammatory”, “Anticancer”, “Antimicrobial”, “Antiulcer”, “*Citrullus colocynthis* juice”, “*Citrus limon*”, “*Allium sativum*”, “*Vitex negundo*”, “*Zingiber officinale*”, “Mercury”, “Mercury Sulphide”, “Pink Rock Salt”, “Borax”, “Magnetite”, “*Ferula asafoetida*”, “*Brassica juncea*”, “*Curcuma longa*”, “*Trigonella foenum-graecum*”, “*Piper nigrum*”, “*Croton tiglium*” “Pharmacological action” “Kummati mezhugu” “Siddha medicine” or their combinations. Articles were included based on their relevance to ingredients of Kummati Mezhugu and its indications, availability of full text, and study design, including clinical trials, mechanistic studies, and reviews. Exclusion criteria included duplication, lack of relevance to the subject, and insufficient methodological details. Studies that did not focus on herbal therapies or lacked direct applicability to the topic were also excluded. The article selection process involved multiple stages: screening titles and abstracts, reviewing full texts, and applying inclusion and exclusion criteria to ensure relevance and quality. The analysis and article writing took about 8 months.

Ingredients of Kummati Mezhugu [4]

Table 1 provides a detailed overview of the components of KM

Table: 1 Ingredients of Kummati Mezhugu

Tamil name	Botanical name/Chemical name	Quantity
Section 1		
Kummati Saaru	<i>Citrullus colocynthis</i> Linn	2 litres
Elumicham pazha Saaru	<i>Citrus limon</i> Linn	2 litres
Poondur Saaru	<i>Allium sativum</i> Linn	2 litres
Notchi Saaru	<i>Vitex negundo</i> Linn	2 litres
Inji Saaru	<i>Zingiber officinale</i> Roscoe	2 litres
Section 2		
Rasam	Mercury	4 g
Lingam	Mercury Sulphide	4 g
Indhuppu	Pink Rock Salt	4 g
Vengaram	Sodium baborate	4 g
Kaantham	Magnetic oxide of iron	4 g
Section 3		
Perungaayam	<i>Ferula asafoetida</i> Linn	4 g
Kadugu	<i>Brassica juncea</i> Linn	4 g
Manjal	<i>Curcuma longa</i> Linn	4 g
Vendhayam	<i>Trigonella foenum-graecum</i> Linn	4 g
Milagu	<i>Piper nigrum</i> Linn	4 g
Nervaalam	<i>Croton tiglium</i> Linn	4 g

Purification of Ingredients:

All herbal drugs in section 3 except *Croton tiglium* are fried in low flame [4].

Croton tiglium Linn:

A quantity of 156 grams each of cow dung milk, cow's urine, and lemon juice (*Citrus limon* Linn) is measured. 35g of *Croton tiglium* Linn seed is wrapped securely in a cloth and subjected to individual decoction in each of the aforementioned liquids. Following the boiling process, the outer covering, skin, and internal foliar components of *croton tiglium* Linn are removed. Then it is fried in cow's ghee [4].

Rasam

Rasam (Mercury) is ground with Turmeric (*Curcuma longa* Linn) and Brick powder each for 1 hour and burn with *Acalypha indica* Linn leaf juice until the juice evaporates [2].

Lingam

Lingam (Mercuric sulphide) is heat treated with mixture of Lemon Juice (*Citrus limon* Linn), Milk, and Juice of *Acalypha indica* Linn as it gets into a consolidated form [2].

Indhuppu

Soak Indhuppu (Pink rock salt) in vinegar for three days, then dry it in sunlight [2].

Vengaaram

Vengaaram (Borax) is fried until all moisture is removed [2].

Kaantham

Kaantham (Magnetic oxide of iron) is soaked separately in lemon juice (*Citrus limon*), vinegar, and buttermilk for three days each, then dried in sunlight [2].

Preparation of Kummati mezhugu

First, all herbal juices mentioned in section 1 are mixed and boiled down to one-fourth. Then, the remaining herbal and mineral ingredients mentioned in section 2 and 3 are purified, powdered and added drop by drop to the reduced decoction until a mezhugu consistency is achieved. The final product is stored in an airtight container.

Dose: 200 - 500mg OD for 3 – 5 days.

Vehicle: Palm jaggery

Indications: Peptic ulcer, Ascites, Ovarian tumour, Chronic fever, hepatomegaly, splenomegaly, anaemia, dysmenorrhea and PCOS [3].

LITERATURE REVIEW:

A summary of detailed Siddha literature on Kummati Mezhugu, as noted in Table 2 (Herbal juices majorly used in its preparation), Table 3 (Herbs used in the preparation), and Table 4 (Metals/Minerals used in the preparation of the concoction), is presented below [4].

Table 2 Description of Herbal juices majorly used in the preparation of Kummati Mezhugu

S. No	Ingredient	Taste	Potency	Division
1.	<i>Citrullus colocynthis</i> Linn	Bitter [5]	Hot	Pungent
2.	<i>Citrus limon</i> Linn	Sour	Hot	Pungent
3.	<i>Allium sativum</i> Linn	Pungent	Hot	Pungent
4.	<i>Vitex negundo</i> Linn	Bitter, Astringent, Pungent	Hot	Pungent
5.	<i>Zingiber officinale</i> Roscoe	Pungent	Hot	Pungent

Table 3 Description of Herbs used in the preparation of Kummati Mezhugu

S. No	Ingredient	Taste	Potency	Division
1.	<i>Ferula asafoetida</i> Linn	Bitter	Hot	Pungent
2.	<i>Brassica juncea</i> Linn	Pungent	Hot	Pungent
3.	<i>Curcuma longa</i> Linn	Pungent, bitter	Hot	Pungent
4.	<i>Trigonella foenum-graecum</i> Linn	Bitter	Cold	Pungent
5.	<i>Piper nigrum</i> Linn	Pungent, Bitter	Hot	Pungent
6.	<i>Croton tiglium</i> Linn	Bitter	Hot	Pungent

Table 4 Description of Metals/Minerals used in the preparation of concoction

S. No	Ingredient	Taste	Potency
1.	Rasam	All tastes especially, Sweet	Hot and Cold
2.	Lingam	Nil	Hot
3.	Kaandham	Bitter, Astringent	-
4.	Vengaaram	Sweet with astringent	Hot
5.	Indhuppu	Salt	Hot

PHARMACOLOGICAL ACTION OF RAW DRUGS

A detailed description of the pharmacological actions of the raw drugs used in the preparation of Kummati Mezhugu is provided in Table 5 and 6.

Table 5: Phytochemical and Pharmacological Profile of Herbal Ingredients in Kummati Mezhugu

S. No	Ingredients	Phytochemical constituents	Pharmacological actions
1.	<i>Ferula asafoetida</i> Linn	Ferulic acid, Luteolin, α -Pinene, α -terpineol, Umbelliferone, Vanillin, Isopimpinellin	Hepato-protective [5,6], Anti-cancer [7,8], Anti-oxidant [9], Anti-ulcer [10].
2.	<i>Brassica juncea</i> Linn	Sinapic acid, Sinapine, Juncin, Sinigrin (allyl glucosinolate), Allyl isothiocyanate, Phenyl Isothiocyanate.	Anti-microbial, Anti-tumor, Anti-oxidant [11].
3.	<i>Curcuma longa</i> Linn	curcumin, tumerone, atlantone, zingiberene – curcumin, demethoxycurcumin bisdemethoxycurcumin- inhibit TNF induced Nkb	Anti-ulcer [12,13], Anti-oxidant [14], Anti-cancer [15], Hepato-protective [16].
4.	<i>Trigonella foenum-graecum</i> Linn	Trimethylamine, Neurin, Trigonelline, Choline, histidine, lysine, smilagenin, vitexin.	Anti-inflammatory [17], Hepatoprotective [18], Anti-ulcer [19], Anti-oxidant and Anti-cancer [20].
5.	<i>Piper nigrum</i> Linn	Piperanine, piperettine, piperylin A, piperolein B, and pipericine, brachyamide B, dihydro-pipericide, (2E,4E)-N-eicosadienoyl-pereridine, N-trans-feruloyltryamine, N-formylpiperidine, guineensine, pentadienoyl as piperidine, guineensine	Anti-oxidant [21], Hepatoprotective [21], Anti-inflammatory [22], Anti-cancer activity [23],
6.	<i>Croton tiglium</i> Linn	Diterpenoids, sesquiterpenoids, sesterterpenoid, triterpenoid, glycosides, alkaloids, benzoate derivatives, pyran derivatives, cyclopeptide, tropone derivatives limonoids	Anti-cancer [24], Anti-oxidant [25], Anti-inflammatory [25].

Table 6 Pharmacological Profile of Metal/Mineral Ingredients of Kummati Mezhugu

S. No	Tamil Name	Chemical Name	Pharmacological actions
1.	Rasam	Mercury	Anti-inflammatory, Antibacterial, Anti-apoptosis [26]
2.	Lingam	Mercury Sulphide	Antipyretic activity Anti-inflammatory Analgesic activity Neuroprotective activity [27]
3.	Kaandham	Magnetic oxide of iron	Anti-inflammatory, Hepato-protective, Hematinic [2]
4.	Vengaaram	Sodium baborate	Antioxidant and Anti-inflammatory[28], Anti-cancer activity [29].
5.	Indhuppu	Pink Rock Salt	Anti-oxidant [30]

DISCUSSION

The review of Kummati Mezhugu, a traditional Siddha medicine, delves into its unique blend of herbal, metallic and mineral ingredients, highlighting how these components work together to deliver therapeutic benefits. Kummati Mezhugu is a semi-solid medicated wax that has been used for centuries, cherished for its medicinal properties and long shelf life of 5 years. Its composition reflects the Siddha

principle of harmonizing the three humors—Vatha, Pitha, and Kapha—particularly aiming to pacify Vali and Iyam imbalances due to the combination of bitter (Kaippu) and pungent (Kaarpu) tastes [31]. During the digestive process, both diet and drugs undergo biochemical transformations governed by the body's digestive fire (Agni). These transformations may not be immediately perceptible upon ingestion; however, they play a critical role in the assimilation of the substance within the body. While certain inherent properties of the substance persist post-digestion, the final therapeutic effect is ultimately determined by its division (Vibagam), a stage of biotransformation modulated by the digestive fire. Thus, the digestive capacity of the individual serves as a key determinant in the bioconversion of ingested substances, thereby influencing the pharmacological impact of the drug. Kummatti mezhugu possess a pungent division. Also, the potency is perceived as the dynamic force that governs the bioavailability and therapeutic actions of a substance, thereby influencing its pharmacokinetic and pharmacodynamic profiles. Kummatti mezhugu possess hot potency [32]. The primary ingredients of Kummatti Mezhugu include *Citrullus colocynthis*, *Citrus limon*, *Allium sativum*, *Vitex negundo*, and *Zingiber officinale*, each contributing distinct pharmacological actions such as hepatoprotection, anti-ulcer, and anticancer effects. Additionally, metallic and mineral constituents like Mercury, Mercury Sulphide, Pink Rock Salt, and Borax are incorporated to enhance the therapeutic potency. The medicine is advised to be taken with a vehicle palm jaggery. In Siddha medicine, palm jaggery is recognized for its therapeutic benefits, particularly its ability to balance the three fundamental humors—Vali (Vata), Azhal (Pitta), and Iyam (Kapha). Despite its cooling nature, it is uniquely effective in regulating all three doshas, thereby promoting overall physiological balance. This makes it a valuable component in medicinal formulations, often serving as a vehicle to enhance the efficacy and absorption of therapeutic substances [4, 26].

CONCLUSION

Kummatti Mezhugu is a classical Siddha formulation known for its multi-targeted therapeutic effects, particularly in hepatoprotective and gynecological conditions. Its combination of herbo-mineral ingredients, prepared through traditional methods, supports its efficacy and stability. While its traditional uses are well documented, further scientific validation is essential to confirm its safety and clinical effectiveness in contemporary healthcare.

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ETHICAL APPROVAL

As the present study is a Literature review, it does not involve the use of human or animal subjects and therefore, ethical clearance is not applicable.

CONFLICT OF INTEREST

The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

AUTHOR CONTRIBUTION

Conceptualization: AB; Data collection and compilation: AB, SR RM, KR; Manuscript Writing: AB, SR RM and KR; Proofreading and editing: AB, SR RM, KR, MV.

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