



Review Article

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THERAPEUTIC POTENTIAL AND PHARMACOLOGICAL VALIDATION OF NAVAUPPU MEZHUGU: A SIDDHA MEDICINE REVIEW

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ABSTRACT

Navauppu Mezhugu is a classical Siddha herbo-mineral formulation traditionally prescribed for a wide range of ailments, including pain (Soolai), ascites (Mahotharam), lymphadenitis (Kiranthi), rheumatism (Vali Vatham), arthritis (Mudaku Vatham), and gastric ulcers (Envagai Gunmam). The formulation is reputed for its broad therapeutic efficacy in managing inflammatory, infectious, and degenerative disorders. To correlate the traditional therapeutic indications of Navauppu Mezhugu with the pharmacological activities of its ingredients and to summarize scientific and toxicity evidence supporting its safety and efficacy. A comprehensive review of classical Siddha literature and published scientific studies was conducted. Data on the phytochemical composition, pharmacological properties, physicochemical characterization, and toxicity evaluation of Navauppu Mezhugu and its individual ingredients were analyzed. The formulation contains mineral and herbal ingredients exhibiting analgesic, anti-inflammatory, antioxidant, antimicrobial, immunomodulatory, and protective activities. Experimental studies demonstrated significant anti-inflammatory and analgesic effects in animal models, with high-dose efficacy comparable to standard drugs. Physicochemical analysis confirmed stability, purity, and bioavailability, with no detectable toxic metals. Acute and sub-acute toxicity studies revealed no adverse effects up to 2000 mg/kg, confirming its safety. Navauppu Mezhugu is a safe, pharmaceutically stable, and therapeutically effective Siddha formulation.

Keywords: Navauppu Mezhugu, Siddha medicine, anti-inflammatory, analgesic, herbo-mineral formulation, toxicity study, traditional pharmacology.

INTRODUCTION

The Siddha system of medicine is one of the oldest traditional healing sciences practiced in South India, rooted in a holistic understanding of the human body, disease causation, and therapeutic interventions. Among its wide range of pharmaceutically diverse preparations, the system recognizes 32 internal formulations, each possessing distinct therapeutic properties, and preparation standards. Many of these formulations incorporate purified metals, minerals, salts, and other inorganic substances, which undergo elaborate detoxification processes to make them safe, stable, and therapeutically active. The inclusion of such inorganic components is not incidental but deliberate, reflecting Siddhar's deep understanding of their transformative potential when processed correctly. Each formulation type is also assigned a defined shelf life, ensuring both potency and safety when administered according to classical guidelines.

Within these 32 internal formulations, Mezhugu (medicated wax) occupies a unique position. Mezhugu preparations are semi-solid, viscous, and smooth-textured medicinal products traditionally known for their ability to retain potency for five years according to classical standards. Their enhanced stability and therapeutic efficiency are attributed to the meticulous preparation techniques described in Siddha literature. These techniques include prolonged grinding, trituration, and controlled heating, all of which aid in breaking down particle size, improving homogeneity, and enhancing bioavailability. The semi-solid

nature of Mezhugu formulations further enables easy absorption, sustained release of active constituents, and improved tolerability.

Navauppu Mezhugu (NUM) is one such classical herbo-mineral formulation belonging to this category. It is prepared through the grinding and integration of nine inorganic salts (navauppu), two pashanams, and selected herbal ingredients, resulting in a stable form. The unique combination of salts and minerals confers a broad therapeutic spectrum, allowing it to address multiple pathological processes simultaneously. Siddha texts describe its role in managing wide range of disorders, including throbbing pain, rheumatoid arthritis, dysmenorrhea, ascites, lymphadenitis, chronic skin ulcers, venereal diseases, rhinitis, flatulence, hydrocele, hemiplegia, and various fevers. The breadth of these indications reflects the formulation's versatility, particularly its strong actions on the musculoskeletal, lymphatic, reproductive, and gastrointestinal systems.

NUM is especially valued in conditions mediated by Vaatha derangements. In Siddha pathophysiology, Vaatha governs movement, nerve conduction, musculoskeletal function, circulation, and vital energy flow. When aggravated, it gives rise to pain, stiffness, spasms, inflammation, degeneration, and impaired organ functions. The ingredients in NUM, many of which are known for their analgesic, anti-inflammatory, antispasmodic, carminative, and detoxifying properties—collectively work to pacify aggravated Vaatha, relieve obstruction, enhance metabolic fire (aagni), and restore

physiological balance. The presence of alkaline salts also supports digestion, reduces gaseous distension, and aids in removing accumulated toxins, further supporting its traditional applications in gastrointestinal disorders.

With growing scientific interest in traditional formulations, Navauppu Mezhugu has gained attention for its pharmacological potential. Modern studies on similar herbo-mineral formulations reveal significant anti-inflammatory, analgesic, antimicrobial, and antioxidant properties, much of which can be attributed to their mineral-rich composition and synergistic interaction of ingredients. NUM's preparation process—particularly the repeated grinding and trituration—enhances particle reduction, improves stability, and promotes deeper tissue penetration, making it a promising candidate for modern therapeutic evaluation.

Despite its longstanding traditional use, systematic scientific exploration of NUM remains limited. There is a pressing need to examine the therapeutic validity of its ingredients individually and collectively, link their known pharmacological actions with classical indications, and explore possible mechanisms of action through modern biomedical frameworks. This becomes especially important in the context of integrating traditional medicines with contemporary healthcare practices, ensuring safety, efficacy, and scientific credibility.

Therefore, this article aims to provide a comprehensive evaluation of the therapeutic efficacy of the ingredients of Navauppu Mezhugu in relation to its traditional indications. By bridging classical knowledge with available scientific evidence, the work seeks to deepen understanding of this formulation's clinical potential and contribute to the broader validation of Siddha herbo-mineral medicines.

Ingredients

Table 1: Drug Profile of NUM ⁴

Drug	English Name	Quantity
Phase A		
Kariyuppu	Sodium Chloride	10 g
Intuppu	Himalayan salt	
Vaalayauppu	Glass gale	
Pottiluppu		
Navatcharam	Ammonium Chloride	
Moongiluppu	<i>Bambusa arundinacea</i>	
Kalluppu	Crystal salt	
Parai uppu	Types of sodium Chloride ⁵	
Pooneeru	Fuller's Earth	
Phase B		
Veeram	Hydrargyrum perchloride	40 g
Karpooram	<i>Cinnamomum Camphora</i>	20 g
Chukku	<i>Zingiber Officinale</i>	12 g
Milagu	<i>Piper nigrum</i>	
Thippili	<i>Piper longum</i>	
Nervaalam	<i>Croton tiglium</i>	
Phase C		
Thumatti Saru	<i>Citrullus colocynthis</i>	Quantity Sufficient
Milk	Cow's milk	
Thiripala kudineer	<i>Terminalia chebula</i> <i>Terminalia bellerica</i> <i>Phyllanthus emblica</i>	

Method of purification

Kari uppu (Sodium Chloride)

- Dissolve the Kariyuppu (Sodium Chloride) in water (Sea water or Rain water) and filter it. Heat the filtrate until it attains a thick consistency (Kuzhambu padham) and insolate it to get the purified salt ⁶.
- To purify Kariyuppu (Sodium Chloride), 35 g (1 balam) of the salt is taken and subjected to a sequential process of solar purification using various herbal juices. From the 1st to the 6th day, 210 ml (6 balam) of the juice of Sengazhuneer (*Nymphaea alba*) is poured over the salt each day, followed by drying in sunlight. On the 7th and 8th days, the material is kept under sunlight without adding any juice. From the 9th to the 14th day, 210 ml (6 balam) of the juice of Karunguvalai (*Monochoria vaginalis*) is added daily, and the mixture is again dried in sunlight. The 15th and 16th days involve sun-drying without the addition of juice. From the 17th to the 22nd day, 210 ml (6 balam) of rice-washed filtrate (Kazhuneer) is poured daily, followed by sunlight drying. Finally, on the 23rd and 24th days, the substance is

exposed to sunlight alone to complete the purification process ⁷.

- Dissolve the Kariyuppu (Sodium Chloride) in 7 parts of water or vinegar (Kaadi) by volume and filter it. The filtrate is heated to attain a thick consistency (Kuzhambu patham). At resistable heat, add small amount of Lemon juice or butter milk and insolate until it crystallizes. Perform the same process for 10 times to get the purified salt ⁷.
- Dissolve the Kariyuppu (Sodium Chloride) in Plantain water (Vaazhaikattai neer) and filter it. Boil the filtrate to attain a thick consistency (Kuzhambu patham), add small amount of Lemon juice and insolate until it crystallizes ⁷.
- Mix the Kariyuppu (Sodium Chloride) with butter milk and insolate it till it completely dries ⁸.

Inthuppu (Himalayan salt)

- Soak the Indhuppu (Himalayan salt) in vinegar (Kaadi) for 3 days and insolate it ⁷.
- Churn the Indhuppu (Himalayan salt) in vinegar (Kaadi) or goat's urine for 72 minutes (3 Naazhikai) and insolate it ⁷.

- Dissolve the Indhuppu (Himalayan salt) in vinegar (Kaadi) and filter it. Insoluate the filtrate until it crystallizes⁹.
- Boil the Indhuppu (Himalayan salt) in goat's urine and allow it to dry completely to get the purified salt¹⁰.
- Soak the powdered Indhuppu (Himalayan salt) separately in vinegar (Kaadi) and cow's urine and insoluate this effectively.
- Soak the Indhuppu (Himalayan salt) in cow's urine or lemon juice and insoluate it to get the purified salt¹⁰.

Valaiyaluppu (Glass gale):

- Soak the Valaiyaluppu (Glass gale) in vinegar (Kaadi) for 90 minutes and insoluate it completely.
- Dissolve the Valaiyaluppu (Glass gale) in vinegar (Kaadi) and dry the supernatant under sunlight to get the purified salt.
- Dip the Valaiyaluppu (Glass gale) in Tamarind leaf juice and keep it under sunlight for 45 minutes.
- Soak the Valaiyaluppu (Glass gale) in butter milk and cow's urine. Then dry it under sunlight to get the purified salt.
- Roast the Valaiyaluppu (Glass gale) in cow's urine for 3 times to get the purified form¹⁰.

Kalluppu (Crystal salt)

- Mix the Kalluppu (Crystal salt) with vinegar (Kaadi) and wipe the moisture with a cloth. Then insoluate it to get the purified salt⁷.

Navatcharam (Ammonium Chloride)

- Dissolve the Navatcharam (Ammonium Chloride) in hot water and filter it. After heat subsides, pour it in a wide mouthed basin and insoluate until it crystallizes to salt. This should be preserved in a bottle along with the root of *Abrus precatorius*⁶.
- Grind the Navatcharam (Ammonium Chloride) in goat's urine or kashuneer (second rice washed filtrate) and dry this effectively to get the purified form⁶.
- Dissolve the Navatcharam (Ammonium Chloride) in cow's urine, filter and burn it until all the water molecules evaporate. Insoluate it to get the purified salt⁷.
- Dissolve the Navatcharam (Ammonium Chloride) in sap of Palm spadix (pathaneer) and it is filtered. Boil the filtrate to attain thick consistency and dry this completely¹⁰.

Pooneeru (Fuller's Earth)

- Dissolve Pooneeru (Fuller's Earth) in 4 parts of water (Dew water) by volume. Filter the supernatant to a wide mouthed porcelain basin and this must be subjected to insolation until it crystallizes. Perform the same process for 10 times to get the purified Pooneeru⁶.
- Dissolve the Pooneeru (Fuller's Earth) in lemon juice and boil the supernatant till it crystallizes to salt⁷.
- Dissolve the Pooneeru (Fuller's Earth) in pure water and insoluate the supernatant until all the water molecules evaporate⁸.
- Dissolve the Pooneeru (Fuller's Earth) in 4 parts of water by volume. Keep it aside undisturbed for 4 - 5 hours. Then transfer the supernatant to a wide mouthed basin and insoluate it to get the purified form.
- Dissolve the Pooneeru (Fuller's Earth) in pure water and boil the supernatant until all the water molecules evaporate. Then dry it under sunlight to get the purified form¹¹.
- Dissolve the Pooneeru (Fuller's Earth) in dew water or water. Beat this mixture well and remove all the froth from it. Filter and insoluate it to get a crystalline form¹⁰.

Karpooram (*Cinnamomum camphora*)

- Soak the Karpooram (*Cinnamomum camphora*) in flower juice of Sengazhuneer (*Nymphaea alba*) for 24 minutes (1 Naazhikai) and dry it under sunlight to get the purified Karpooram⁶.
- Karpooram (*Cinnamomum camphora*) powder is made to a bundle with a cloth. Boil the bundle in human's urine for 21 hours and then boil it in cow's urine for 6 hours to get the purified form¹⁰.
- Mix cow's ghee and Karpooram (*Cinnamomum camphora*) powder in a ladle. Heat it until it effervesces and repeat this for 7 times to get the purified Karpooram (*Cinnamomum camphora*)¹⁰.
- Mix cow's ghee and Karpooram (*Cinnamomum camphora*) powder in a ladle. Heat it until it effervesces and repeat this for 7 times to get the purified Karpooram (*Cinnamomum camphora*)¹⁰.

Veeram

- Take one balam (35 grams) of Veerakatti, add pepper-infused water, and boil it for six hours. Then place it inside pepper paste (*Piper nigrum* Linn). In another pot, mix 650ml of buttermilk with one balam (35 grams) of sulfur and bury the previously processed Veerakatti in it. Heat the mixture on a mild fire for a few hours before taking it out⁷.
- Mix a small amount of sulfur in tender coconut water, place it in a pot, and expose the *Veeram* to the fumes without letting it touch the liquid. Heat it gently for half an hour and then remove it. This is another method of purification⁷.
- Take one balam (35 grams) of Alum (Padikaram) and one balam (35 grams) of Sulfur (Gandhagam), powder both and keep ready. Gradually add kerosene to the Veerakatti and extract it. While adding kerosene, ensure that the Veeram is seen as vapor⁷.
- Place the Veeram in a clay vessel, pour breast milk over it until fully submerged, and keep it under sunlight until all the milk evaporates. Then collect the residue. Cow's milk may be used as an alternative to breast milk⁷.
- Split a bitter gourd (*Momordica charantia* Linn), place the Veeram piece inside it, tie it securely with a string, and hang it over a vessel without touching the liquid below. Heat it for one hour using either tender coconut water or fruit juice underneath⁷.

Chukku

- The outer skin should be peeled¹²
- Remove the scale leaf and dry it⁶.
- Slake *Zingiber officinalis* (1 part) with lime (2 parts) and rinse it off after 3 hours (1 Saamam). Remove the outer layer⁶.
- Remove the scale leaf of *Zingiber officinalis* soak it in lime stone solution for 1 hour, and dry it¹².
- Dip the *Zingiber officinalis* in juice of Notchi (*Vitex negundo*) 9 times¹⁰.

Milagu

- Roasted in low flame⁶.
- Soak in sour butter milk for 3 hours^{11,13} or water for 1 day¹² or *Phyllanthus emblica*¹⁰ or Vinegar (Kaadi)¹⁰ and dry it.
- Dip in *Eclipta prostata* for 7 times¹⁰.
- Grind in lemon juice (*Citrus limon*)¹⁰

Thippili

- Soak in *Plumbago indica* leaf juice¹⁰

Nervalam

- Mix 70 ml each of fruit juice of Nelli (*Emblica officinalis*), juice of Karisaalai (*Eclipta prostrata*) and cow dung juice together. Boil 35 g of *Croton tiglium* bundle in this liquid concoction by hanging it as Tholayandhiram by Kamalaakini (Two fire woods). Repeat this process twice and exclude the outer shell and radicle of *Croton tiglium*. Rinse it off to get the purified form⁶.
- Boil the *Croton tiglium* separately in cow's urine, cow dung juice and lemon juice, then dry it. Fry it in cow's ghee after excluding the outer shell and radicle to get the purified form⁶.
- Boil the *Croton tiglium* in buffalo dung juice, rinse it off, discard the outer shell and radicle and bundle it. Boil this bundle separately with raw rice and milk, then rinse the *Croton tiglium*. Dry it in shadow and roast it with castor oil to get the purified form⁸.
- Burn the *Croton tiglium* in buffalo dung juice for 3 hours as Tholayandhiram, wash it, break it and remove the radicle. Then burn these seeds in the mixture of butter milk and lemon juice for 3 hours. Dry it and roast it with castor oil to attain redness along with the spread of aroma¹².
- Burry the *Croton tiglium* in soil manured with cow dung & goat dung and water it for 2 weeks. Then chop the plumule of sprouted *Croton tiglium* and perform other purification processes¹².
- Boil the *Croton tiglium* in cow dung juice, rinse it and remove the outer shell. Soak this in lemon juice, remove the radicle and dry it. Roast this with little ghee to get the purified form⁹.
- Soak the *Croton tiglium* in lemon juice or Poovarasu (*Thespesia populnea*) flower-soaked water for 8 days to get the purified form¹⁰.
- Boil the *Croton tiglium* separately in buffalo dung juice, juice of Araikkeerai (*Amaranthus tristis*) and *Aloe vera* juice to get the purified form¹⁰.
- Boil the *Croton tiglium* separately in cow dung and vinegar (1.3 litres) or cow's milk to get the purified form¹⁰.
- Boil the *Croton tiglium* separately in cow dung juice, tamarind leaf juice and buffalo's milk to get the purified form¹⁰.
- Stuff the *Croton tiglium* into lemon and keep it in ember to get the purified form¹⁰.
- Soak the *Croton tiglium* in vinegar (Kaadi) for 10 days to get the purified form (Or) Boil the *Croton tiglium* separately in cow dung juice and juice of Araikkeerai (*Amaranthus tristis*) to get the purified form¹⁰.
- Remove the seed coat of *Croton tiglium* and boil it in cow's urine to get the purified form¹⁰.
- Remove the outer shell of *Croton tiglium*, boil it in cow dung juice and dry it to get the purified form.
- Remove the outer shell of *Croton tiglium* and boil it separately in *Aloe vera* juice, Paanagam, cow's milk and cow's ghee for one day to get the purified form¹⁰.
- Boil the *Croton tiglium* in mixture of vinegar (Kaadi) and buffalo dung juice. Then boil it in mixture of butter milk and lemon juice to get the purified form¹⁰.
- Boil the *Croton tiglium* in cow dung and remove the outer shell and radicle, place it on the leaf of Thazhuthaazhai (*Clerodendrum phlomoidis*), daub it with cow dung and keep it in ember. After boiling, rinse it, again boil it in milk and wash it well. Then soak it in lemon juice to get the purified form.

Method of preparation

In the initial step, all the ingredients were purified as described in the Siddha literatures. The salts listed in Group A were finely

ground and placed in an earthen pot. To this mixture, *Citrullus colocynthis* juice and cow's milk were added. The combined ingredients were then filtered and boiled. The resulting mixture was thoroughly blended with the root of *Abutilon indicum* until it achieved a semisolid (kuzhambu) consistency. After allowing the mixture to cool, it was ground into a powder. The drugs in Group B were also ground into a fine powder. This powder was then combined with the previously prepared mixture. The combined powders were triturated with thiripala kudineer for 3 hours. After this initial trituration, cow's milk was added, and the mixture was triturated again for an additional 3 hours until it reached a waxy (Mezhugu) consistency (Figure 1). Finally, the prepared NUM was stored appropriately in an airtight container⁴.

Dosage

56 – 200 mg once in a day with palm jaggery.

Indications

Navauppu mezhugu is indicated for throbbing pain (Soolai), Ascites (Mahotharam), Lymphadenitis (Kiranthi), Veneral diseases (Megam), Rhinitis (Neerkovai), Flatulence (Uthara vayu), Virulence (Vida vatham), Hydrocele (Anda vatham), Rheumatism (Vali vatham), Arthritis (Mudaku vatham), chest pain (Thamar vatham), soothagavayu (Dysmenorrhoea), 8 types of gastric ulcer (envagai gunmam), Parisavatham (Paralysis).

Dietary instructions

Salt-restricted diet. Hot water, rice, cow's milk, buttermilk, amaranth, drumstick, eggplant, broad beans, other legumes, and green gram are additionally included in the Pathyam⁴.

Pharmacological activity of Ingredients of Navauppu Mezhugu

The pharmacological profile of mineral drugs are represented in Table 3 and herbal drugs are represented in Table 4.

The listed drugs show diverse tastes, potencies, and post-digestive effects, reflecting their unique actions in Siddha pharmacology. Most salty (uppu) drugs like Kariyuppu, Intuppu, Vaalayauppu, and Kalluppu aid digestion, liquefy phlegm, and balance Vatha and Kapha. Navatcharam (bitter and sour) enhances digestion and reduces Kapha, while Moongiluppu (astringent, hot, pungent) promotes tissue healing and metabolism. Veeram (Hgcl₂), Karpooram, *Zingiber officinale*, *Piper nigrum*, *Piper longum*, *Croton tiglium*, and *Citrullus colocynthis* are hot and pungent, acting as stimulants and detoxifiers that clear channels and reduce Kapha and Vatha. *Piper longum* also has a sweet division, demonstrating rejuvenative properties. Milk is sweet and cold, nourishing and pacifying Vatha and Pitha. Among the Triphala, Kadukkai balances all doshas, *Phyllanthus emblica* is a coolant and rejuvenates, and *Terminalia bellerica* aids digestion and detoxification. It also has anticancer activity²⁴. Navauppu Mezhugu is indicated for pain, ascites, lymphadenitis, venereal diseases, rhinitis, flatulence, rheumatism, arthritis, dysmenorrhoea, gastric ulcers, and paralysis, closely correlating with the pharmacological actions of its ingredients. Mineral components like Intuppu, Moongiluppu, and Veeram exhibit antioxidant, anti-inflammatory, antibacterial, and protective properties, useful in inflammatory and infectious conditions. Herbal ingredients including *Cinnamomum camphora*, *Zingiber officinale*, *Piper nigrum*, and *Piper longum* possess analgesic, anti-inflammatory, carminative, antimicrobial, and immunomodulatory effects, supporting relief from pain, arthritis, respiratory, and digestive disorders. The piperine content in thirikadugu (Chukku, Milagu, Thippili) is proven to enhance the bioavailability²⁵. *Croton tiglium* contributes antitumor and analgesic effects, while *Citrullus colocynthis* offers

anti-inflammatory, anti-ulcer, and antioxidant benefits. Milk acts as a soothing medium, and Thiripala Kudineer adds anticancer and detoxifying potential. Thus, these actions justify Navauppu Mezhugu's traditional use in painful, inflammatory,

gastrointestinal, and degenerative disorders, validating its broad therapeutic efficacy.

Table 2: Properties of Ingredients of NUM

Drug	Taste	Potency	Division
<i>Kariyuppu</i>	Salty	-	-
<i>Intuppu</i>	Salty	-	-
<i>Vaalayauppu</i>	Salty	-	-
<i>Pottiluppu</i>	Salty	-	-
<i>Navacharam</i>	Bitter, Sour	-	-
<i>Moongiluppu</i>	Astringent	Hot	Pungent
<i>Kalluppu</i>	Salty	-	-
<i>Parai uppu</i>	Salty	-	-
<i>Pooneeru</i>	-	-	-
<i>Veeram</i>	Pungent Sour	Hot	Pungent
<i>Karpooram</i>	Bitter, Pungent	Hot	Pungent
<i>Chukku</i>	Bitter	Hot	Pungent
<i>Milagu</i>	Bitter, Pungent	Hot	Pungent
<i>Thippili</i>	Sweet	Hot	Sweet
<i>nervaalam</i>	Bitter	Hot	Pungent
<i>Thumatti Saru</i>	Bitter	Hot	Pungent
Milk	Sweet	Cold	Sweet
<i>Terminalia chebula</i>	Astringent, Sweet, Sour, Pungent, Bitter	Hot	Sweet
<i>Phyllanthus embilca</i>	Sour, Sweet, Astringent	Cold	Sweet
<i>Terminalia bellerica</i>	Astringent	Hot	Sweet

Table 3: Pharmacological profile of Mineral ingredients of NUM

Ingredient	Pharmacological Activity
Intuppu	Antioxidant ¹⁴
Moongiluppu	Anti-inflammatory Antidiabetic Antioxidant Antimicrobial Insecticidal Anthelmintic Anticancer Protective effect Antiarthritic ¹⁵
Veeram	Antibacterial ¹⁶

Table 4: Pharmacological Profile of the Herbal Ingredients of NUM

<i>Cinnamomum camphora</i>	Camphor, linalool, borneol, camphene, dipentene, terpineol, saffrole, and cineole ¹⁷	Analgesic Anti-inflammatory ¹⁸
<i>Zingiber officinalis</i>	Gingerol, Shogaol, Zingerone, Gingerine, GINGEROL ¹⁹	Antioxidant activity Anti-inflammatory activity Antimicrobial activity Anticancer activity Antiemetic activity ¹⁹
<i>Piper nigrum</i>	Piperine, Piperamide, Piperide, Sarmentosine, Sarmentine, Trichostachine ²⁰	Anti-pyretic activity Anti-inflammatory activity Antidiarrheal effect Carminative activity Immunomodulatory Anticancer activity Antioxidant activity Antimicrobial activity ²⁰
<i>Piper longum</i>	Piperine, Piperlonguminine, Piperide, Pellitorene, Pipernonaline, Asarinine, Bisabolene, Pentadecane ²¹	Antibacterial activity Antimicrobial activity Antiamoebic activity Antiplatelet activity Immunomodulatory activity Antiasthmatic activity Antitumor activity Neuroprotective activity Anthelmintic activity ²¹
<i>Croton tiglium</i>	Tiglian phorbol esters, 20-linoleate, 13-O-ttigloylphorbol-20-linoleate, 12-O-acetylphorbol-13-tigliate, 12-O-decanoylphorbol-13-(2-methylbutirate) ²²	Antitumour Anti-nociceptive Hemagglutinating Analgesic ²²
<i>Citrullus colocynthis</i>	Cucurbitacins, quinoline, nicotinamide, uracil, 2-hydroxyquinoline ²³	Anti-inflammatory, anti-diabetic, anti-microbial, antibacterial, anti-carcinogenic, anti-ulcerogenic, hypolipidemic, hypoglycemia, antioxidant ²³
Thiripala kudineer		Anticancer ²⁴ Antioxidant Anti-inflammatory

Scientific Studies on Navauppu Mezhugu

A study reported that Nava Uppu Mezhugu (NUM) is a high-quality, pharmaceutically stable herbo-mineral formulation with well-characterized physicochemical and instrumental properties. The formulation exhibited ash values within normal limits, higher water solubility than alcohol, low moisture content, and a slightly alkaline pH (8.3), indicating purity, stability, and good bioavailability. FTIR analysis revealed the presence of functional groups corresponding to alcohols, amides, ethylene derivatives, secondary alcohols, halo compounds, and sodium-related

compounds, while ICP-OES analysis showed high levels of sodium, potassium, phosphorus, and sulphur, moderate amounts of carbon, calcium, iron, mercury, zinc, and magnesium, and undetectable levels of toxic metals such as arsenic, cadmium, lead, manganese, and copper. Pharmacologically, NUM demonstrated dose-dependent anti-inflammatory activity in carrageenan-induced paw edema in Wistar albino rats, with the high dose (24 mg/kg) showing greater inhibition than the standard drug indomethacin, and significant analgesic effects in Eddy's hot plate test in mice, particularly at the high dose (48 mg/kg), with

onset of action around 1 hour. However, NUM showed no significant antispasmodic activity in rat ileum studies, indicating it does not relax smooth muscles³.

Toxicity study on NUM

A previous study demonstrated that Navauppu Mezhu, a herbo-mineral Siddha formulation, is safe in both acute and sub-acute toxicity studies in Wistar albino rats. The acute study showed no toxicity or mortality at doses up to 2000 mg/kg body weight. In the 28-day sub-acute study, low (200 mg/kg), middle (400 mg/kg), and high (800 mg/kg) doses were well tolerated, with normal weight gain, stable liver and kidney function, and preserved histological architecture of major organs. Additionally, plasma glucose levels decreased, lipid profiles remained largely normal, and no adverse effects were observed, confirming the safety of Navauppu Mezhu at therapeutic doses²⁶.

CONCLUSION

Nava Uppu Mezhu (NUM) is a traditional Siddha herbo-mineral medicine long used to relieve pain, reduce inflammation, and support digestion, and current research provides strong evidence for these effects. Experimental studies confirm that NUM has measurable analgesic and anti-inflammatory properties, and these outcomes align well with the known actions of its ingredients, many of which possess antispasmodic, carminative, and gut-protective effects. Scientific analyses such as FTIR, XRD, and elemental profiling show that the formulation is chemically stable, well-processed, and free from harmful impurities. Toxicity evaluations further indicate that NUM is safe at therapeutic doses and does not produce adverse physiological effects. Thus, these findings reinforce the traditional claims of its effectiveness and support the safe clinical use of Nava Uppu Mezhu for managing pain, inflammation, and digestive disturbances.

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