

PHARMACOGNOSTICAL, PHYSICOCHEMICAL VALIDATION OF CLASSICAL
MARINE-DERIVED SIDDHA DRUGS (KADALPADU THIRAVIYANGAL)Dr. Vishnu Kanth R.^{*1}, Dr. Thushara M.², Dr. Raguraman N.³¹Post Graduate Research Scholar, Department of PG Gunapadam, Government Siddha Medical College, Palayamkottai.^{2,3}Post Graduate Research Scholar, Department of PG Gunapadam, Government Siddha Medical College, Palayamkottai.***Corresponding Author: Dr. Vishnu Kanth R.**Post Graduate Research Scholar, Department of PG Gunapadam, Government Siddha Medical College, Palayamkottai. DOI: <https://doi.org/10.5281/zenodo.21886569>**How to cite this Article:** Dr. Vishnu Kanth R.^{*1}, Dr. Thushara M.², Dr. Raguraman N.³ (2026). Pharmacognostical, Physicochemical Validation Of Classical Marine-Derived Siddha Drugs (Kadalpadu Thiraviyangal). European Journal of Pharmaceutical and Medical Research, 13(8), 692-695.

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ABSTRACT

Marine-derived substances occupy a significant place in Siddha pharmaceutics and some of the marine drugs are collectively known as *Kadalpadu Thiraviyangal*. It includes Conch (*Sangu*), Amber gris (*Ambra gresia*), Coral (*Pavazham*), Pearl (*Muthu*), and Sodium chloride (*Uppu*), which are extensively used in classical Siddha formulations due to their greater therapeutic efficacy. Siddha literature describes these marine drugs having coolant, Expectorant, and Tonic activities. Modern scientific studies reveals that these substances are rich in calcium carbonate, trace minerals, and bioactive compounds with pharmacological properties such as Anti-oxidant, Anti-inflammatory, Immuno-modulatory, and Anti- microbial effects. Pearl powder exhibits antioxidant and wound-healing activities, while coral and conch shells primarily consist of calcium carbonate and serve as mineral supplements. Ambergris contains Ambrein, a biologically active triterpene compound with pharmacological significance. Sodium chloride plays a vital role in electrolyte balance and cellular function. This review scientifically validates Kadalpadu thiraviyangal by correlating Siddha literature with modern physicochemical and pharmacological studies, emphasising their therapeutic potential, chemical composition, and medicinal applications.

KEYWORDS: Siddha medicine, Kadalpadu Thiraviyangal, Conch, Coral, Pearl, Ambergris, Sodium chloride, Marine drugs, scientific validation.**INTRODUCTION**

Siddha medicine is one of the traditional systems of medical practices especially performing in South India and classifies their entire therapeutic drugs into plants (*Thavaram*), Minerals (*Thadhu*), and Animal By-products (*Jeevam*) origins. Marine-derived affluences forms a significant category and they are widely used in Siddha formulations such as Parpam, Chenduram, and Chunnam preparations. These marine drugs provide essential minerals, bioactive compounds, and having therapeutic benefits including rejuvenation, detoxification, and strengthening of body tissues. Marine-derived Siddha drugs such as Conch, Pearl, Coral, Ambergris, and Sodium chloride have been traditionally classified as *Kadalpadu thiraviyangal*^[1] as per siddha classical texts and they are used to treat respiratory disorders, digestive diseases, fever,

neurological conditions, and reproductive disorders. Modern scientific validation confirms their pharmacological activity and mineral composition, supporting their therapeutic use.

1. CONCH SHELL (SANGU)**1.1 Description**

Conch shell (*Turbinella pyrum*) is a marine shell widely used in Siddha medicine. After various methods of specific purification and calcination processes to prepare Sangu Parpam. It is an important marine drug described in Siddha literature. It contains essential minerals and exhibits therapeutic properties validated by scientific studies.

1.2 Physical and chemical properties of (Conch shell) Sangu

- Colour : White or cream
- Hardness: 3–4 Mohs scale
- Structure: Spiral shell
- Odour: Odourless
- Solubility: Insoluble in water, soluble in acids

Conch shell (Sangu) primarily consists of Calcium carbonate (CaCO_3): 95–99%, Calcium phosphate, Magnesium carbonate and trace minerals such as sodium and iron. Marine shells like conch have been widely used as traditional medicines due to their mineral content and pharmacological importance.

1.3. Medicinal Uses and its Scientific Validation

According to Siddha literature, An Ash powder made from the shell material is used in Siddha medicine, primarily as a cure for stomach ailments and for increasing beauty and strength. *Sangu parpm* is used for treating diarrhoea, Acne, Pimples, liver enlargement (Hepatomegaly), Spleenomegaly, Abdominal pain, Indigestion, loss of appetite, Malabsorption, Acid reflux, abdominal distension and Irritable bowel syndrome. It is commonly to treat menopause. The conch shell of consists of calcium, iron, and magnesium. It is well known in Siddha for its antacid and digestive properties. Conch shell preparations are used for Gastritis, Acid peptic disorders, Calcium deficiency, Respiratory diseases, and Bone strengthening properties.^[2] Pharmacological studies confirm mineral-rich marine shells serve as calcium supplements and therapeutic agents.

2. AMBER GRIS (AMBRA GRESIA)

2.1 Description

AMBERGRIS (AMBRA GRESIA) is an important marine drug described in Siddha literature. It contains essential minerals and exhibits therapeutic properties validated by scientific studies. Ambergris is a waxy marine substance produced in the intestine of sperm whales and found floating in ocean waters. Ambergris hardens when exposed to seawater and sunlight and develops a pleasant fragrance. Ambrein is the major active constituent responsible for pharmacological activity.^[3]

2.2 Physical and chemical Properties of Amber gresia

2.2.1 Physical Properties

- Colour: Grey, black, or yellowish
- Texture: Waxy solid
- Odour: Musky fragrance
- Melting point: 60–62°C
- Solubility: Soluble in alcohol, ether, oils

2.2.2 Chemical Composition

Major components include.

- Ambrein (Triterpenoid compound)
- Cholesterol derivatives

- Alkaloids
- Organic acids

2.3 Medicinal Uses

Siddha medicine use Ambergris for.

- Nervine-tonic
- Aphrodisiac action
- Cardio-tonic
- Anti-spasmodic activity

3. CORAL (PAVAZHAM)

3.1 Description

CORAL (PAVAZHAM) is an important marine drug described in Siddha literature. Coral is organic, formed by living organisms. They are made up of a thin layer of calcium carbonate. Coral reefs are home to 25% of all marine species, where 30 of 34 known animal phyla are present. Coral is actually made up of thousands of coral polyps. It forms from branching, antler-like structures created from coral polyps in tropical and subtropical ocean waters. It contains essential minerals and exhibits therapeutic properties validated by scientific studies. A coral polyp is an invertebrate that can be no bigger than a pin head up to a foot in diameter. Each polyp is a sac like animal having a set of tentacles surround a central mouth opening. It excretes an exoskeleton near the base. Over many generations, the colony thus creates a skeleton characteristic of the species which can measure up to several meters in size. Coral is a marine organism with a calcium carbonate skeletal structure widely used in Siddha medicine. Coral skeleton is composed of intermeshed calcium carbonate and pigments. Marine coral preparations are commonly used in Siddha formulations such as Pavala Parpam, Pavala chendhooram, Anna pavala chndhooram.^[4]

3.2 Physical and chemical Properties of Coral

3.2.1 Physical Properties

- Color: Red, pink, or white
- Hardness: 3–4 Mohs scale
- Structure: Branching skeletal structure
- Density: 2.6–2.7 g/cm³

3.2.2 Chemical Composition

- Calcium carbonate (CaCO_3): 90–98%
- Magnesium carbonate
- Calcium phosphate
- Trace minerals

3.3 Medicinal Uses

Siddha literature describes coral as:

1. Anti inflammatory
2. Anti cancer (soft coral genus sinularia)
3. Bone regeneration
4. Restoration of dental deformities
5. Neuroprotective (11-dehydrosinularolide – used to treat Parkinson's disease)
6. Hypertensive treatment

7. Secosteroids used to treat asthma, arthritis & other inflammatory disorders Used in cosmetic and reconstructive surgery and as a substrate for new bone growth.

4. PEARL (MUTHU)

4.1 Description

Pearl is a marine gem produced by molluscs and used extensively in Siddha medicine. It is composed of calcium carbonate (mainly aragonite or a mixture of aragonite or calcite) in minute crystalline form, which has been deposited in concentric layers. When a foreign body slips into the mollusk's mantle (an organ similar to skin that forms the lining of the Mollusk's shell), the mollusks form a sac around the irritant with a layer of nacre. As the layer of nacre build, the pearl grows. The combination of aragonite and Conchiolin is called nacre, which makes up the mother of pearl. Foreign particles function as nuclei. It is an important marine drug described in Siddha literature. Pearl contains essential amino acids and minerals contributing to Anti-oxidant and Immuno-modulatory effects. Pearl also shows antioxidant, anti-inflammatory, and wound healing activities.

4.2 Physical and chemical Properties of Pearl

4.2.1 Physical Properties

- Colour: White, cream, or pink
- Shape: Round or irregular
- Hardness: 2.5–4 Mohs scale
- Structure: Layered crystalline

4.2.2 Chemical Composition

- Calcium carbonate
- Calcium phosphate
- Magnesium
- Amino acids
- Trace minerals

4.3 Medicinal Uses of Pearl (Muthu)

For skin problems and treatment to cosmetically enhance skin quality, pearls are used around the world. It is profoundly considered as a skin whitener for ages. For overcoming acne and Rosacea problems, pearls are found miraculously effective.^[5]

Pearl has the following therapeutic actions.

- Expectorant
- Antidote
- Aphrodisiac
- Body tonic
- Anti-spasmodic
- Treatment for fever and respiratory diseases

5. Sodium chloride (UPPU)

5.1 Description

Sodium chloride is a metal halide composed of sodium and chloride with sodium and chloride replacement capabilities. It is an ionic compound with chemical formula NaCl representing 1:1 ratio sodium and chloride ions. It is soluble in water, ammonia, methanol, Glycerol, Formic acid, Propylene glycol. pH is 7. It is an important marine drug described in Siddha literature. It is naturally found in sea water. The seawater is evaporated and the salt is collected.

5.2 Physical and chemical Properties of Pearl

5.2.1 Physical Properties

- Colour: White crystalline
- Taste: Salty
- Solubility: Highly soluble in water
- Melting point: 801°C

5.2.2 Chemical Composition

- Sodium (Na⁺)
- Chloride (Cl⁻)

5.3 Medicinal Uses of Uppu

Sodium chloride is used together with water as one of the primary solutions for intravenous therapy. It is also used in catheter flushing. Nasal spray often contains a saline solution. It has a role as an emetic and a flame retardant. As a preservative, salt helps to prevent spoilages of foods. It is used as a raw material for making a large number of useful chemicals in industry such as sodium hydroxide, Sodium carbonate, baking soda.

Siddha uses sodium chloride for.

- Digestive stimulant
- Electrolyte balance
- Treatment of indigestion
- Detoxification
- Enhancing drug absorption

Table 1: List of Kadalpadu Thiraviyangal.

S.no	Drug	Tamil name	Source	Classification
1	Conch	<i>Sangu</i>	Marine	Animal origin
2	Pearl	<i>Muthu</i>	Marine	Animal origin
3	Coral	<i>Pavazham</i>	Marine coral	Animal origin
4	Ambergris	<i>Ambra gresia</i>	Sperm whale secretion	Animal origin
5	Sodium chloride	<i>Uppu</i>	Sea salt	Mineral origin

Table 2: Active chemical composition.

S.no	Drug	Major chemical component
1	Conch	Calcium carbonate
2	Pearl	Calcium carbonate
3	Coral	Calcium carbonate
4	Ambergris	Ambrein
5	Sodium chloride	NaCl

DISCUSSION

Marine drugs used in Siddha medicine demonstrate significant pharmacological potential due to their mineral composition, bioactive compounds, and physiological compatibility. Calcium-rich marine drugs improve bone health, neurological function, and metabolic balance. Modern research confirms Siddha claims regarding their therapeutic efficacy. Scientific studies confirm marine Siddha drugs contain biologically active minerals and compounds. It includes Calcium carbonate supports bone health, Pearl contains antioxidant and Immuno-modulatory compounds, Ambergris contains Ambrein with pharmacological activity, Marine shells provide bioavailable calcium.

CONCLUSION

Kadalpadu Thiraviyangal such as conch, Ambergris, coral, pearl, and sodium chloride are scientifically validated marine drugs with significant therapeutic potential. Their rich mineral composition and bioactive compounds contribute to their medicinal value. Siddha literature descriptions align with modern pharmacological findings, supporting their continued use in traditional and integrative medicine.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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