

**COMPARATIVE PHYSICOCHEMICAL AND ELEMENTAL EVALUATION OF NATURAL
PAVAZHAM (CORALLIUM RUBRUM) AND VAIPPU PAVAZHAM (SYNTHETIC CORAL)
PREPARED AS PER SIDDHA LITERATURE**

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ABSTRACT

Background: Pavazham (Coral) is an important marine mineral drug used in Siddha medicine for treating respiratory, febrile, and degenerative disorders. Due to ecological restrictions and legal bans on coral harvesting, availability of natural coral has become limited. Siddha literature describes Vaippu Murai, a traditional synthetic substitution method for rare drugs. **Aim:** To prepare Vaippu Pavazham as per classical Siddha text and to compare its physicochemical and elemental composition with natural Pavazham. **Materials and Methods:** Vaippu Pavazham was prepared following the procedure described in Agasthiyar Vadha Sowmiyam. Organoleptic evaluation, pH analysis, and elemental profiling using ICP-OES were performed for both natural and synthetic samples. **Results:** Both samples exhibited similar organoleptic features and slightly alkaline pH (7.1–8.1). Elemental analysis revealed comparable mineral profiles, with calcium, magnesium, sodium, and potassium as dominant elements. Heavy metals were within permissible limits. **Conclusion:** Vaippu Pavazham shows physicochemical and elemental equivalence to natural coral, supporting its use as a safe and effective substitute. Further pharmacological and toxicological studies are recommended.

KEYWORDS: Pavazham, Vaippu Murai, Siddha medicine, Synthetic coral, ICP-OES.

INTRODUCTION

The Siddha system of medicine is one of the most ancient traditional medical systems of India, originating in the southern part of the country and deeply rooted in Tamil culture. It emphasizes holistic health by maintaining balance among the three humors—Vatham, Pitham, and Kapham—and the five basic elements (Pancha Bhoothas). Siddha therapeutics extensively employ herbal, mineral, and animal-origin drugs for disease prevention, treatment, rejuvenation, and longevity.^[1]

Pavazham (Corallium rubrum) is a well-known marine mineral drug categorized under Kadalpadu Thiraviyangal and Navaratna group in Siddha medicine. Classical texts describe its utility in the management of fever, respiratory disorders, tuberculosis, spermatorrhoea, dyspepsia, and degenerative diseases.^[2-4] Pavazham is also attributed with antacid, nervine tonic, diuretic, and rejuvenative properties.^[3]

Natural coral is an endangered marine organism, and its collection is prohibited under the Wildlife Protection Act, 1972. Due to scarcity, high cost, and adulteration, the availability of genuine coral for medicinal use has significantly reduced.^[5] To overcome such limitations, Siddha literature describes a special method known as Vaippu Murai, wherein rare or unavailable drugs are substituted using synthetic preparation techniques.^[6]

Agasthiyar Vadha Sowmiyam elaborates the preparation of Vaippu Pavazham, a synthetic form of coral prepared using Gowri Sangu (Cypraea tigris), Sathi Lingam (Cinnabar), breast milk, sesame oil, and animal-based processing.^[7] Scientific validation of such traditional methods through analytical studies is essential to establish safety, quality, and therapeutic equivalence.

AIM

To prepare Vaippu Pavazham as per classical Siddha literature and to compare its physicochemical and elemental composition with natural Pavazham.

natural Pavazham were collected from authenticated sources and identified by experts in Gunapadam.^[4,8]

Vaippu Pavazham was prepared strictly according to the procedure mentioned in Agasthiyar Vadha Sowmiyam.^[7]

MATERIALS AND METHODS

The raw materials including Gowri Sangu (*Cypraea tigris*), Sathi Lingam (HgS), breast milk, sesame oil, and



Fig 01: Narpavazham.



Fig 02: Kodipavazham.



Fig 03: Vaippupavazham.

Organoleptic characters such as colour, odour, and texture were evaluated. Physicochemical analysis included determination of pH. Elemental composition was analyzed using Inductively Coupled Plasma–Optical Emission Spectrometry (ICP-OES) at CCRS, Chennai and TNAU, Coimbatore.

RESULTS AND DISCUSSION

Both natural Pavazham and Vaippu Pavazham showed similar organoleptic characteristics, indicating comparable physical nature. The pH of both samples was found to be slightly alkaline (7.1–8.1), supporting traditional claims of antacid and Pitha-pacifying actions.^[3,4]

Table 01.

S.No	Paramters	Narpavazham	Kodipavazham	Vaippu Pavazham
1.	pH	8.07	8.12	7.16
Mineral profile – (ICP-OES Method)				
1	Magnesium (ppm)	13794.30	18216.30	860.43
2	Aluminium (ppm)	559.57	179.17	179.0
3	Sodium (ppm)	1463.05	2263.62	1456.04
4	Zinc(ppm)	9.85	32.38	15.27
5	Manganese (ppm)	41.13	6.02	23.86
6	Potassium (ppm)	370.89	141.19	561.55
7	Copper (ppm)	5.79	4.14	26.81
8	Lead (ppm)	3.25	1.25	4.11
9	Iron (ppm)	899.20	283.79	582.73
10	Calcium (ppm)	29129.81	29534.79	37566.08
11	Silver (ppm)	0.83	-	0.13
12	Cadmium	BDL	BDL	BDL
13	Arsenic	BDL	BDL	BDL
14	Mercury	BDL	BDL	BDL
15.	Nickel (ppm)	2.76	1.58	1.86

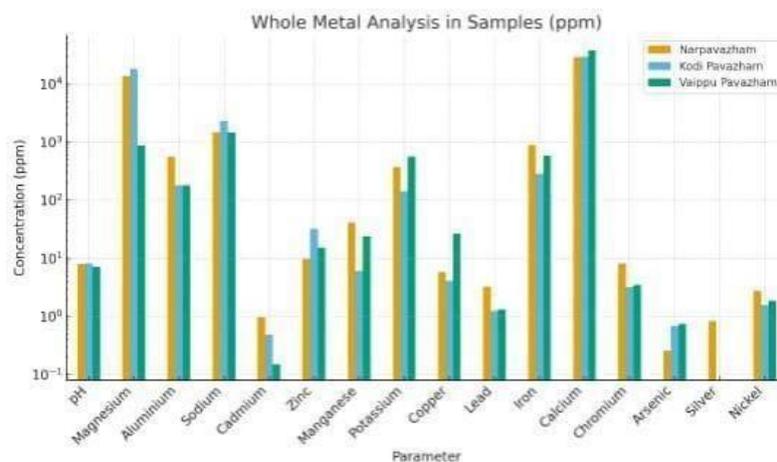


Fig. 04: Minerals Analysis (ICP -OES Method).

Elemental analysis revealed that calcium, magnesium, sodium, and potassium were present in dominant quantities in both samples. Trace elements such as iron, zinc, and manganese were present in moderate levels, while toxic heavy metals including lead, cadmium, arsenic, and mercury were within permissible limits.^[9] These findings suggest that Vaippu Pavazham closely resembles natural Pavazham in mineral composition.

CONCLUSION

The present study demonstrates that Vaippu Pavazham possesses physicochemical and elemental characteristics comparable to natural Pavazham. This validates the Siddha concept of Vaippu Murai as an effective substitute method. Vaippu Pavazham may be considered a safe, economical, and eco-friendly alternative to natural coral. Further pharmacological and toxicological studies are recommended.

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