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## Scientific validation of essential trace elements before and after purification of palagarai (\**Palagarai – Cypraea moneta* Linn.)

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### Abstract

**Aim:** The Aim of the study is about comparative analysis of essential trace elements present in the Unpurified and Purified *Palagarai* (*Cypraea moneta*).

**Methods:** The common routine method for purification of *Palagarai* (*Cypraea moneta*) which mentioned in siddha text and the analytical study done by ICP OES method.

**Results:** This study may contribute in scientific evaluation of *Cypraea moneta*. Raw drug and purified drug analyzed for scientific validation. These studies vouch that presence of some essential elements like zinc, copper, iron compared before and after purification.

**Conclusion:** *Palagarai* used on much disease in siddha system of medicine. The similarities and differences in the physical and chemical observations among the raw and purified samples. Further studies are needed to vouch the inorganic compounds present before and after purification of *Palagarai*.

**Keywords:** siddha medicine, *Palagarai*, *Cypraea moneta*, ICP OES.

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### 1. Introduction

Every system of medicine has its own contribution to the society. *Siddha* system is one of ancient traditional system well practiced in Southern part of India. In this system medicine preparation based on *pancha bootha* theory mostly deals with plants, metal, minerals and marine products<sup>(1)</sup>. The species is called money Cowri because the shells were historically used in many Pacific and Indian Ocean countries as shell money before coinage. The marine shell resembles the size of a Tamarind seed up to almond size and it's available in white, red and yellow colors. The White marine

shell is considered as superior for medicinal purpose<sup>(2)</sup>. It's one of the five marine resources in siddha text (*kadalpadu Diraviyangal*) otherwise known as money Cowri is the species of small sea snail, a marine gastropod mollusk in the family *Cypraeidae*<sup>(3)</sup>.

It's used as ornaments and used for divination as part of Hindu astrology. It feeds on algae and marine vegetation lies on loose rocks and pieces of dead coral. The *Palagarai* used for medicinal values after the purification through the guidance of siddha text and treating Anemia Dropsy, liver diseases.

## 2. Materials and Methods

*Palagarai* were procured from authenticated source of Raw Drug market at Chennai. Lemon was purchased from Local market for the preparation of Lemon juice.

*Palagarai* - 100 gm. (30 No.)  
Lemon Juice - 250 ml  
Duration - 24 hrs

### Lemon (*Citrus limon*)

Lemon juice contains citric acid, which aids in both the production of digestive juices and the process of digestion. It can aid the bowels in daily elimination of toxins, and it can help with gas and bloating. Lemons are known as an “anionic food”, which means they contain a higher number of negative ions than positive ions.

It also helps with the daily elimination of toxins from the bowels, assists with gas and bloating, and contributes certain cleansing qualities which help the digestive tract. Lemon juice can help boost the nutrient levels in your colon<sup>(5)</sup>.

The fruit juice used in treatment of leprosy and white spots. Lemon peels used in cosmetics as a hair – rinse and mouth freshener<sup>(6)</sup>.

Citrus limon and some other Rutaceae members are rich source of antioxidant reported antioxidant activity of the essential oil from citrus limon<sup>(7)</sup>.

### 2.1 Purification Process

The amount of *Palagarai* taken and washed with clean water then dried well. Its weighed for processing and separate containers for purpose of identification in the containers were labeled as PAL 1 and PAL 2 (PAL 1- Unpurified, PAL 2 Purified). Each samples were taken same quantity. PAL 1 was taken was above mentioned amount.

Take the above mentioned quantity of PAL 2 kept immersed in juice of lemon up to 24 hours and this process repeated for 15 days. Then wash those *Palagarai* by using water and then dried in sun light. PAL 2 was prepared fine power.



### 2.2 Uses of Purified *Palagarai* in Siddha Medicinal preparation

1. *Palagarai Parpam*
2. *Palagarai Chunnam*
3. *Palagarai Chenduram*

Those preparations were used treating many chronic diseases along with different types of Adjuvants<sup>(4)</sup>.

**Table 1: Observation made before and after purification of *Palagarai* Process with lemon Juice**

Sample	Colour	Weight (gm)
Raw drug	Yellowish white	100
Purified drug	Grayish white	92

(They are insoluble in water. It is soluble Hydrochloric acid with effervescence. They contain phosphate, fluoride and carbonate of calcium, magnesium phosphate, manganese and sodium chloride<sup>(8)</sup>).

### 3. Results

The fine powdered raw and purified *Palagarai* (processed in lemon juice) was taken for chemical analysis and vouch the presence of essential trace elements before after purification.

**Table 2: Essential trace elements**

Sl.No	Name of the Parameter	Raw drug	Purified drug
1	Total Phosphorus (%)	0.32	0.003
2	Total Potassium (%)	3.20	0.05
3	Total Sodium (%)	1.02	0.43
4	Total Calcium (%)	15.03	20.92
5	Total Magnesium (%)	8.46	0.01
6	Total Sulphur (%)	0.68	BLQ*
7	Total Zinc (ppm)	1.71	4.45
8	Total Copper (ppm)	0.42	8.52
9	Total Iron (ppm)	230	1850

\* BLQ – Below limit of Quantification

Method of testing BVCPSCH/INS/SOP-053 By ICP OES

### 4. Discussion

*Palagarai* is a mineral drug of animal origin used in Siddha therapeutics in many diseases. In the present work deals with comparison of before and after purification of *Palagarai* was made and studied scientifically. Chemical analysis of the raw drug and purified drug were reported in Table no. 2. Increasing in the amount of inorganic constituents like Calcium, Iron, Zinc and presence of many vital trace elements is observed.

### 5. Conclusion

*Palagarai* plays important role in medicinal practice. The usage mentioned in Siddha text has to be reviewed for scientific validation. It also used as a calcium supplement both for human. This analytical study proves that there are many micro and macro elements present in the drug *Palagarai*. Medicinal Convention of *palagarai* can be determined only after carrying out more chemical analysis. So the process of Purification plays increases the potency of medicinal property.

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