



Review Article

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## IMPORTANCE OF MARINE ANIMAL RESOURCES IN THE SIDDHA SYSTEM OF MEDICINE

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### Abstract

Siddha system of medicine is one of the oldest traditional system of medicine practiced in south Asian regions of the world. This Siddha system of medicine is practiced based on the quotations provided by the ancient Siddhas for a wide range of health manifestations. The siddha pharmaceutical preparations were prepared from the plant and animal origin. In this divine system of medicine even the marine animal resources play a vital role for the healing and prevention of many diseases. This research work focuses on the marine animal resources utilized by the Siddha medical system in curing illness with the aid of siddha literature and quotations. *Muththu, Muththu chitpe, Coral, Palakarai, Nandukal, Aamai, Killinjal* and crab are the Vital resources for the medicinal preparation in Siddha pharmaceutical preparations. These marine animal resources are purified using different techniques based on the siddha quotations and prepared as different forms of medicines since they have a wide range of medicinal benefits to treat a wide range of health manifestations caused due to *vatha, pitha and kapam*. Also, these marine animal resources act as nutrient, cardiac and nerve tonic. Which strengthens and boost the immune system and prevents many health issues. These marine animal resources possess many pharmacological actions such as anti-inflammatory, anti-pyretic, anti-oxidant and anti-flatulent. With these varieties of pharmacological actions, they serve as potent medicinal resources in curing diseases.

**Key words:** *Muththu, Muththu chitpe, Coral, Palakarai, Nandukal, Aamai, Killinjal*

## 1.0 Introduction

Siddha system of medicine is one of the oldest traditional system of medicine which utilizes the natural products for the treatment and prevention of a wide range of diseases. The siddha system of medicine uses the plant, animal and the marine origin as resources to prepare the siddha pharmaceuticals for the treatment and prevention of several diseases. The Siddha system is based on a combination of ancient medicinal practices and spiritual disciplines as well as alchemy and mysticism. With the aid of quotes from ancient Siddhas treatments were made and practiced in this divine system of medicine. Marine resources to play a vital role in the pharmaceuticals of siddha drug productions. *Muththu, Muththu chitpe, Coral, Palakarai, Nandukal, Aamai, Killinjal* and Crab possess many important pharmacological actions and helps to cure several health manifestations. They are prepared in different forms and used in the treatment and prevention process (Vikkas and Neetika, 2014).

### 1.1 Muthu as a marine resource

'Muthu' is known as Pearl in English and also called in different other names such as *Muriwanji, Thoolagam, Sukkiran, Nithilam, Tharalam, Sangeentrapillai, Aadithansothi, Aazhividu, Kathalam and Mouthigam*. This pearl is not only available in the marine water but also available in land. In siddha system of medicine, the marine pearl is called '*Salasam*' and pearl which is available in land is called '*Talasam*'. There are several sources of pearl such as moon, conch, fish head, crocodile, lotus, clouds, shell, snail and cobra as well (Mubarak and Masilamani, 2012).

Pearl has six different properties such as clear sharp, massiveness, twinkling light, clarity, shining appearance and attraction. Also, some ill effects might be caused by soil, stone, water and air. Pearl is available in different colours depending on the resources it is found. Water (white), cloud (red), Bamboo (Ice), Snake (blue), Paddy (Green), Fish (trumpet flower/pathiri) and elephant tusk (Golden) (Balamurugan and Madhavan, 2018).

In order to identify the pearl, the oysters and pearl are placed in *pooneru* with limestone and boiled. After the water content is evaporated it is thoroughly washed, dried and ground with the juice of *Asarum europaeum* for about four days. Again, they are placed in *moosai* which is made up of the sunflower leaf and covered with black gram flour and dried in sunlight for about 7 days. Thereafter small pearls could be observed which is same like the natural pearl and shiny in appearance.

The general characteristics of pearl is well explained in Siddha quotations as it has mucolytic, anticonvulsive, aphrodisiac and body strengthening properties. Also, the quotation highlights that pearl is used to treat anemia, eye diseases, effective for fever of bony origin and body weakness. This is also considered to increase spermatogenesis (Tripathi. 2004).

### 1.2 Coral as a marine resource

Corals are also known as *pavazham*. It grows up to a meter of height and appears as small leafless bushes. The skeleton is enriched with intermeshed calcium carbonate and colored in shades of red by carotenoid pigments. In living coral specimens, the skeletal branches are overlaid with red integument. From which many white polyps protrude. These polyps are octameric and radial symmetric in nature. The red corals dwell in low sedimentation and dark areas of the sea and rocky sea environment. It grows at the depth of 10 to 300 meters below the sea level. Other corallium species are native to the sea around western pacific such as Taiwan and japan region (Sudha, Murthy and Chandra, 2009).

In the Siddha system of medicine, it has many good properties such as *sindhooram*, *semmani*, *senkaai*, *musumusukkai kaani*, *veeraikani* and *thoothulaikani*. Some bad properties are *pilavu*, *mudakku*, *thulai*, *karuppu*, *thirugal* and *velliral*. According to the quotations and Siddhas ancient literature it has many medicinal benefits such as it reduces phlegm, cough and loss of appetite which occurs during the fever. It counteracts the poisonous effect of insects, it controls thirst, it strengthens the nervous system, increase spermatogenesis, treat *pitha* related disorders, cure eye disorders and rejuvenate the skin and make it shiny. These medicinal benefits are the reflection of the pharmacological actions of the corals such as diuretic, laxative, astringent and nerve tonic (Padmaja, 2013).

### 1.3 Aamai as a marine resource

*Aamai* is also known as tortoise. It is also called as *koormam*, *koonan*, *kashshapam*, *kamadam* and *kamadaathari*. Tortoise is classified in to two types one lives in water and the other one lives in the land as habitat. The marine tortoise is used as medicinal benefits. All the shell, flesh, fat, skin and egg of the tortoise are utilized for the medical purposes. Shell is used in pediatric cases as decoction, *parpam* or in tablets (Chandra, 1972).

### 1.4 Killinjal as a marine resource

*Killinjal* is also known as oyster shell. It is also known as *Suththi* or *eral*. There are two types of it such as *siru killinjal* and *perungkillinjal*. This *killinjal* consist with 85%-95% calcium

carbonate, phosphate, calcium sulphate, magnesium and small quantity of ferrous oxide in it (Thiyagaraja, 1968).

### **1.5 Crab as a marine resource**

Crab is known as *nandu*, *kalavan*, *kuliram*, *nalli*, *kavaiththal*, *karkkadaham* and *alavan*. It is present in the marine environment as well as cultivated in land as well. Mostly it is consumed as a food too. The flesh of crab is proved to contained a wide range of pharmacological actions such as diuretic, laxative, haemopoietic, cardiac stimulant and *Pitha* removing properties as well. The siddha literature suggests that the crabs cultivated in land has medicinal values and nutritional values whereas it also highlights that the crabs from sea induces many health manifestations such as abdominal pain, eczema, itching and blood diarrhea (Nadkarni, 1982).

### **1.6 Nandukkal as a marine resource (Fossil Stone Crab)**

It is also known as fossil stone crab. It is present in nature in sea shores. It is a diuretic. It is used in the treatment and prevention of strangury, urinary calculus, chronic ascites, gonorrhea and leucorrhoea (Vikkas and Neetika, 2014).

### **1.7 Palakarai as a marine resource**

*Palakarai* is also known as *Cypraea moneta*, marine shell. Which is considered as one of the five wealth of the ocean. It is a size of tamarind seed to the size of an almond. It is available in various colours such as white, red and yellow. The white marine shell is considered to be the superior resource with the highest medicinal benefits. It has pharmacological actions such as bitter, mucolytic and hypothermic (Madhavan and Jabeen, 2018).

The white marine shell is used to treat several health manifestations such as diarrhea, toxic fever, thirst, eye disorders, indigestion, jaundice, hepatomegaly, splenomegaly and asthma. It is also used as an external drug to treat skin rashes.

### **1.8 Muththu chippi as a marine resource**

*Muththu chippi* is also known as pearl oyster shell. In which the pearl is formed. The flesh is these *muththu chippi* is having a highly nutritious value. The scientific evidences show cases that this has pharmacological actions such as anti-inflammatory and appetite stimulant properties. This is given for the people to treat pulmonary related disorders. It also acts as a cardiac tonic (Kanthal *et al.*, 2017).

## 2.0 Method of Preparation

As per the quotations and scriptures by Siddhas from ancient times, there exist diverse purification techniques for each of these marine resources. Purification is done to detoxify and ensure there is no any impurities exist. And after purification procedures these marine resources are utilized to prepare medicines.

### 2.1 Purification of pearl

At first 35 gm of pearl is added with cow's curd of about 105 gm, insolated and dried. The same process is repeated for three days of time period with fresh curd. The same process is insolated without curd for two more days and dried again. The same process is repeated for two times. Finally, the rest of the material is washed and dried and the purified pearl is obtained.

In another method it is soak in *Datura metel* juice for a day and then washed with purified water. Again, soaked in juice of tamarind leaves, washed thoroughly in purified water. Thereafter insolated and dried to get the purified pearl.

The pearl is also soaked in lemon juice and vinegar for a day and washed with purified water to get the purified pearl. In another method it is soaked in the fruit juice of *Azima tetraacantha* or *Sapindus trifoliatus* or tamarind for two days and purified pearl is obtained (Thiyagaraja, 1992).

In siddha system of medicine there are several medications prepared using pearl. Pearl is ground and powdered well. 35 gm of the pearl powder is mixed with various juices such as *Erukku* plant juice, *Vellai* plant juice, *Aththi* leave juice and *Marutham* bark juice. Also, this juice can be used daily. Then these juices are dried, made in to pills and placed in to 'puda process'. The pills are dried both in sunlight and dew. The dosage is  $1/6^{\text{th}}$  of a bean seed. This pearl is also prepared as '*Muthu chendooram*'. Where 35 gm of purified pearl is taken, ground with the juices of *Jasminum trichotomun*, *Majorana hortensis* (*marukkozhundt*), and *Coccinia grandis* (*kovai*) and placed to puda process to get the *chendooram* (Pandit, Jeyaraj and Anandan, 2009).

### 2.2 Purification of coral

35g of coral is soaked in 210 g of dates toddy and insolated. Furthermore, dates toddy will be added on the next day as well and dried it in sunlight. The same process is repeated for five

times and the rest of the material is washed in purified water and purified. The coral is soaked in lime juice for a day. In the next day it is washed thoroughly in warm water and purified.

In siddha system of medicine there are several medications prepared using corals. The *pavala parpam* is prepared by siddha system of medicine. 35 g of purified coral is triturated with various juices and subjected to the '*puda*' process. The made cakes are dried in sunshade as well as in dew (Thiyagaraja, 1992).

In the siddha system of medicine there are other methods of *parpam* preparations as well. The coral is triturated with latex of *Erukku* and kept in an *agal* and placed in to *puda* to obtained *parpam*. The *parpam* could be prepared using *keezhanelli* as well. The coral is triturated using rabbits blood and made in to cakes then placed in to *puda* process and purified. 20 g of coral and 120 g of honey is placed in a new mud pot and tightly covered with the tile then placed in to *puda* and obtained a purified form of *parpam* (Santhosh and Kulkarni, 2013).

The dosage of *parpam* if it is one pepper size then it is *uththamam*, two pepper size it is *maththimam*, three pepper size it is *athamam*, four size pepper means *thunipu* and five pepper size means *annamath*. This prepared *parpam* is an effective spermatogenic agent. It strengthens the body and protects the body from infections.

### **2.3 Purification of *Aamai***

Fuller's earth and lime stone are taken in equal quantity. Added 8 parts of purified water in to it and mixed well. In other way tortoise is broken in to small pieces and burnt till oily substances are removed from the shell and again It is washed with purified water and the resource substance is obtained for medicinal purposes (Pandit, Jeyaraj and Anandan, 2009).

### **2.4 Purification of *killinjal***

1.4 kg of *killinjal* is placed in a vessel and *Averrhoa carambola* plant juice extract was added in to it together with vinegar and buttermilk. The mouth of the vessel is then covered with a clean cloth and the vessel is exposed to the sunlight for a period of seven days. Thereafter the *killinjal* was taken out and placed inside another new vessel containing the plant juice of *seetheviyar sengaluneer* (*Nymphaea odorata*), buttermilk and vinegar. Again, the vessel is covered with the clean cloth and exposed for a period of seven days in sunlight. Finally, the purified *killinjal* is taken and used for medicinal purposes (Thiyagaraja, 1992).

## 2.5 Purification of *Nandukkal*

Lime stone and *pooneeru* are mixed in water and allowed to settle for same time. Thereafter the clear solution is obtained and *nandukkal* is then placed in this solution and heated for three hours. Then *nandukkal* is taken out and washed in purified water to get it purified.

## 2.6 Purification of *palakarai*

35mg of *palakarai* is powdered very well and mixed with 350 mg of fruit juice of *Averrhoa carambola*. And placed in day light. This purified form is used to treat jaundice, eye diseases and as nutritive tonic.

In another method these marine shells are soaked in lemon juice or rice gruel. These purified *palakarai* is ground with various herbal uses and placed in to *puda* process. Each day fresh juice is used for the purification process. The prepared pills are then dried under sunlight and dew (Madhavan and Jabeen, 2018).

## 2.7 Purification of *Muththu chippi*

These shells are taken and boiled with salt to get purified form (Thiyagaraja, 1992).

## 3.0 Application of Marine Resources in the Siddha system of medicine

Ancient times siddhas used many methods to prepare medicines depending on the need. Likewise, these marine resources are made in to different varieties of prepared medicines for the treatment and prevention purposes.

### 3.1 Pearl as the curative resource in Siddha system of medicine

Pearl is used with different adjuvants to cure different diseases such as pearl is used with water as an adjuvant to cure tuberculosis. Pearl is used with sugar as the adjuvant to cure deep seated pain. Pearl is used with the adjuvant Bark juice of *Acacia arabica* adjuvant to cure venereal diseases. Pearl is used with the adjuvant jaggery to cure delirium. Pearl is used with the breast milk to treat *pitha* fever in pediatric cases. Pearl is used with the adjuvant butter to cure fever due to indigestion. Pearl is used with the adjuvant bulbous root of lotus to cure hiccough with nausea. Pearl is used with the adjuvant wild *Garcinia xanthochymus* to cure delirium cut excess heat. Pearl is used with the adjuvant milk to cure hallucinations. Pearl is used with the adjuvant buttermilk to treat dyspepsia (Sampasivam Pillai, 1993).

The scientific evidences suggest that pearl powder is one of the popular ingredients in skin care products today. Also, the scientific evidences highlight many pharmacological actions of

the pearl such as anti-inflammatory and a relaxant. In siddha system of medicine, it is also considered as antidote for poison. It is also utilized as a nutrient tonic as it contains amino acids, calcium and trace amount of minerals. Research findings suggests that this pearl boost two of the anti-oxidants present in the human body which is superoxide dismutase (SOD) and glutathione. Thereby it acts as a potent anti-oxidant as well (Gopal *et al.*, 2007).

### 3.2 Coral as a curative resource in Siddha system of medicine

In the siddha system of medicine there are many adjuvants for this *pavazha parpam* which are used to treat several disease conditions 8.75 g of seeds of pomegranate are soaked in 105 g of purified water and triturated well. 4.4 g of jaggery and 105 ml of cow's milk is added in to it. This preparation is taken twice a day for a period of 42 days which is a potent therapy to increase sperm count which is affected due to *vatha* or body heat. But during this therapeutic period intake of oil, mustard and tamarind intake should be prohibited (Chidambarathanu Pillai, 1993).

Drumstick seeds are kept soaked and triturated thereafter 4.4 g of sugar is added in to it. This preparation is taken along with cow's ghee for the improvement of low sperm count caused due to *pitha* and body heat. But during this therapeutic period intake of jack fruit and palmyra fruits intake should be prohibited.

The seeds of *pullanji* is kept soaked and triturated. Thereafter sugar candy is added and mixed well. This preparation is taken with cow's butter for the improvement of low sperm count caused by *kapha* and body heat. But during this therapeutic period higher consumption of citrus fruits and banana should be consumed (Shiyama Sundarachrya, 1982).

In the siddha system of medicine *Pavazha parpam* is used with many adjuvants to treat a wide range of diseases. *Parpam* is used with the adjuvant ghee to treat vomiting due to tuberculosis infection. *Parpam* is used with adjuvant palmyra toddy to treat venereal diseases. *Parpam* is used with butter as the adjuvant to treat fever caused by '*vatha*' and '*pitha*'. *Parpam* is used with adjuvant cow's milk to treat fever. *Parpam* is used with the adjuvant cow's curd to treat colic pain. *Parpam* is used with the adjuvant water to treat sprains and cramps. *Parpam* is used with the adjuvant Basil juice to treat hepatomegaly. *Parpam* is used with tender coconut water as the adjuvant to treat cataract. *Parpam* is used with the adjuvant palm fruit to treat tuberculosis. Likewise, corals play a vital role in the treatment and prevention of several diseases. However, this *pavazha parpam* can be taken in



all the months of the year except march, November and December as per the siddha quotation (Kanthal *et al.*, 2017).

*Pavazha chendooram* also is an effective remedy to treat a wide range of diseases with different adjuvants. 35 g is triturated with the juice of palmyra, cotton, *orithal thamarai*, *uththamani*, arecanut and *kadambu*. It is then placed in to *puda* to obtain *chendooram*. This *chendooram* is an effective remedy for the treatment of piles, burning sensation of head and hand, abdominal pain, tremors and diarrhea. This *chendooram* uses different adjuvants to treat different types of diseases. *Chendooram* is used with the adjuvant hot water to treat bleeding hemorrhoids. *Chendooram* is used with the adjuvant sugar to treat fistula. The *chendooram* is used with the adjuvant ghee to treat burning sensation of head and hand. *Chendooram* is used with the adjuvant juice of *Allium cepa* to treat peptic ulcer with vomiting. *Chendooram* is used with the adjuvant *paanagam* to treat tremors. *Chendooram* is used with the adjuvant water to treat morbid thirst. Like wise the corals play a wide role in the siddha system of medicine to prepared in different forms and to treat several diseases.

### 3.3 *Aamai* as a curative resource in the Siddha system of medicine

The traditional system of medicine such as Ayurveda and Siddha uses tortoise shell as a resource for the production of many pharmaceutical drugs to cure several diseases. One such example is the *Aamaiyottu Karukku Kudineer* is made by the burnt powder of the tortoise shell which is burnt with the white sweet flag , garlic, Bishop's weed, leaves of *Morinda tinctoria*, *Veliparuthi*, leaves of *Lippia nodiflora*, Betel leaves stem and cloves.

Whereas *Amai yottu parpam* is made by grounding earthworm with *Euphorbia lingularia* which is placed in to *puda* process by using *aamayottu kavasam*. This process could be repeated by using *adathoda vasica* juice as well depending on the need.

*Amai yottu mathirai* is made by limestone is applied over the tortoise shell then covered with a cloth and placed in to *puda*. Again ground well with limestone water. Pills are made in such away and again placed in to *puda* to obtain *parpam*.

All the parts of the tortoise are used for the medicinal purposes for example the flesh part is used to treat phlegm, *pitha* disorders, loss of appetite and internal piles. Ghee is formed by melting the fat of the tortoise and this ghee is used as internal drug to cure dropsy, anemia, jaundice, diseases related to the respiratory system and hemorrhoids. Skin of the tortoise is

used to treat scabies. To cure whooping cough and epilepsy fried eggs of the tortoise is given (Maurice, 1976).

*Amai leghium* is used to treat several lung related disorders and phlegm. This is prepared by heating the flesh of the tortoise then mix with onion, garlic, clove, bark of cinnamon, anise seed, coriander seed, pulp of nutmeg and turmeric to  $\frac{1}{4}$  quantity of the flesh and sufficient quantity of ghee is also added and the *leghium* is prepared. Likewise, the tortoise plays another important part in the siddha system of medicine to cure several diseases (Padmaja, 2013).

### 3.4 *Killinjal* as a curative resource in the Siddha system of medicine

The two types of *killinjal* is given in different periods of the year based on the siddha quotations. Because *siru killinjal* is given as a treatment only during the months of 14<sup>th</sup> April to 13<sup>th</sup> May, 14<sup>th</sup> May to 13<sup>th</sup> June and 14<sup>th</sup> June to 13<sup>th</sup> July. Depending on the condition the dosage varies as pepper size.

*Siru killinjal* is used with the adjuvant *siru paalai* and *perum paalai* to treat mild and severe diabetes. It is used with the adjuvant *siru thulasi* and *perum thulasi* to treat *vatha* and excessive *vatha* disorders. *Sirukillinjal* is used with the adjuvant stem juice of mango tree to cure excessive *pitha* disorders. *Sirukillinjal* is utilized with the adjuvants *siru paruthi* and *perum paruthi* to treat cramps. It is used with the adjuvant as cow or goat's milk to treat abdominal distensions. *Sirukillinjal* is used with the adjuvants hot or cold water to treat delirium. Also it is given with the adjuvant coconut or palmyra toddy to treat fever. And *sirukillinjal* is used with the adjuvant honey to treat vomiting. Likewise, this *sirukillinjal* acts as a potent medicinal resource to treat several health manifestations.

Whereas *peru killinjal* is given at the dosage of  $\frac{1}{8}$  portion in the suitable months of 14<sup>th</sup> June to 13<sup>th</sup> July, 14<sup>th</sup> August to 13<sup>th</sup> September, 14<sup>th</sup> September to 13<sup>th</sup> October, 14<sup>th</sup> December to 13<sup>th</sup> January.

*Perukillinjal* is used with the adjuvant *seeraham* to treat piles caused due to *vatha*. *Perukillinjal* is used with the adjuvant *kaatu seeraham* to treat piles caused by *pitha*. It is used with the adjuvant *karun cheeraham* to treat piles caused by *kapha*. *Perukillinjal* is used with the adjuvant *sukku* or ginger or *perarathai* to cure *Neer kattu* caused by *vatha*, *pitha*, *kapha*. This is also used with the adjuvants such as cow's butter or buffalo's butter or goat's butter to treat giddiness caused by *vatha*, *pitha* and *kapha*.

In the siddha system of medicine *killinjal melugu* also prepared by heating the purified *killinjal* in fire and soaked in *Nellikai* juice extract this same procedure is repeated three to five times and thereafter the *killinjal* is taken out placed in *kalvam* and triturated with castor oil until the *melugu*(wax) consistency is formed. These *killinjal melugu* is used as a topical medication for cramps. Likewise, these both the types of *killinjal* acts as a potent medical resource which heals a wide array of disease (Uthamarayan and Kuppusamy Mudaliyar, 1998).

### 3.5 Crab as a curative resource in the Siddha system of medicine

Indigenous system of medicine uses various forms of this crab as medications to treat and prevent many health manifestations. One of the examples is *Nandu theeneer*. For the preparation of *nandu theeneer*, crabs from cultivated land are pounded along with their shell along with 1 portion of *seeraham* and 8 portions of water to 10 portions of crab. Thereafter it is placed in distillation apparatus and the *Nandu theeneer* is obtained. It is utilized as a dosage of 14 to 28 ml which has a pharmacological action of febrifuge and a nutritive tonic also used to treat tuberculosis, cold and fever .

Another preparation is the *Nandu chaaru*. Around 25 crabs are washed and placed in mortar and pounded very well. Again, it was placed in mud pot and  $\frac{1}{4}$  of powdered *sukku*, *milahu*, *malli*, *athimaduram*, *sitrarathai*, *kari manjal* and 2  $\frac{1}{2}$  portion of water was added in to it. The mixture is boiled well until it becomes  $\frac{1}{4}$ <sup>th</sup> of the poured amount. Then it is filtered and taken. This is given at the dosage of 2 to 3 ounces three times per day to treat sinusitis, fever, body pain and cold. *Nandu kudineer* is used to treat vomiting, thirst, body heat, burning sensation and whooping cough in pediatric children (Pandit, Jeyaraj and Anandan, 2009).

*Nandu kulambu* is prepared with the ingredients of pounded crab *rasam*, 4.2g of *thipilli* root, 488 g of *kasthoori*, *korosanam*, *saffron*, *lavangam*, *sathikkai*, *kavanga pattai* and *omam* are triturated very well with *nandu rasam*. Thereafter chilly, pepper, tamarind, salt, coriander seed, onion, curry leaves, coriander leaves and ginger are added in to it and boiled very well. While boiling should remove the oil which is floating and further it is boiled unless a *kulambu* consistency is obtained. This is consumed with rice and is an effective remedy for the treatment and prevention of tuberculosis (Uthamarayan and Kuppusamy Mudaliyar, 1998).

### 3.6 *Nandukkal* as a curative resource in the Siddha system of medicine

The purified *nandukkal* is ground with *mullangi* juice and then ground with the juice of *sirupeelai* and dried to get the *parpam*. It is given at the dose of 65 mg- 260 mg. with the

adjuvant of decoction with the watery plant and used for the treatment of urinary retention and urinary calculus.

*Nandukkal* dissolved with honey is taken 3 times per day for thirteen type of delirium. *Nandukkal* with decoction of *seeraham* for three days is given to cure 64 type of fever. *Nandukkal* with *kiripoondur* juice for all type of poisons and for the treatment of infertility *nandukkal* is taken along with cows milk for twenty days (Padmaja. 2013).

### 3.7 *Palakarai* as a curative resource in the Siddha system of medicine

*Palakarai* can be given with milk and used to treat dropsy, anemia and jaundice. Also, it is given with rose water to treat vomiting. Adjuvant butter is used to treat abdominal pain. *Palakarai* is used with the adjuvant cow's ghee to treat fainting. It is used to treat *delirum* with the adjuvant of curd.

*Palakarai chendooram* is prepared by 35 mg of purified *palakarai* powder mixed with bark juice of mango, juice of *heliotropium indicum*, mimosa, *cineria* and *mullugo lotoides* are ground well and then pills are made. These pills are dried and placed to *puda* process. Using the adjuvant as the use of *Allium sativum* it is used to treat *kapha* diseases. It is used with the adjuvant of Juice of *Bauhinia racemose* to treat heart diseases. It is used with the adjuvant of Juice of *Leucad aspera*(*thumbi*) to treat *vatha* fever. These are given at the dosage of 325 mg to 650 mg and can be used to treat dysuria and gonorrhea (Madhavan and Jabeen, 2018).

### 3.8 *Muththu chippi* as a curative resource in the Siddha system of medicine

In the siddha system of medicine *Muththu chippi* *parpam* is prepared. It is prepared using 5 to 7 times burnt and washed using a clear water. Then it is grounded with juice of *Adathoda vasica*. And then placed in to *puda* process. This *parpam* is used to treat *vatha* associated disorders like rheumatism, dropsy, body aches, abdominal pain and *pitha* diseases like vomiting, hiccough, menorrhagia, splenomegaly, dyspepsia, rheumatic infections also *kapha* related disorders such as dropsy, apoplexy, acne, delirium and ascites (Kanthan *et al.*, 2017).

## 4.0 Conclusion

The marine ecosystem provides a wide range of resources with a high potent of medicinal benefits. The research oriented on marine resources started more than 50 years. However, use of marine resources to prepare different prepared medicines were utilized by ancient traditional system of indigenous medicine such as Siddha and Ayurveda. With different purification techniques and with the aid of siddha quotations from ancient literature using

different adjuvants these prepared medicines are given to treat an array of health manifestations. Moreover, these available marine resources are the potent medical resources exist and to be extinct. Care should be taken to protect and preserve them for sustainable future needs.

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