



## Review Article

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### CHUNNAM: A COMMENDED DOSAGE FORM IN SIDDHA MEDICINE

Ayyasamy S<sup>1</sup>, Sudha R<sup>2\*</sup>

<sup>1</sup>Asst. Lecturer, Dept. of PG Gunapaadam, Govt. Siddha Medical College, Chennai, Tamil Nadu, India

<sup>2</sup>Asst. Lecturer, Dept. of Aruvai Maruthuvam, Govt. Siddha Medical College, Chennai, Tamil Nadu, India

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#### \*Corresponding author

E-mail: sudha.sudakshin@gmail.com

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#### ABSTRACT

Siddha system of medicine is one of the ancient living systems of healing in southern India. A vast cornucopia of different dosage forms of inorganic formulations are indicated in classical texts of this system. *Chunnam* is one such, highly acclaimed dosage form of alkaline group of drugs indicated for chronic degenerative diseases. Highly commended medicine in Siddha classics, *muppu chunnam* also falls under this category which is used in *kayakalpam* treatment. A detailed review is made in this article regarding the special features of *chunnam* preparations, its comprehensive uses in drug making and therapeutic effects which makes this dosage form as an indispensable one in Siddha medicine. This paper aims to highlight an important thrust area of Siddha medicine which enables to unearth many possible medicines for life style disease of this millennium.

**Keywords:** Siddha medicine, Traditional medicine, *Chunnam*, Dosage Form, pH balance, Inorganic drugs.

#### INTRODUCTION

The Siddha system of Medicine is one of the oldest healing systems that emanated as an off-shoot of the spiritual-ingress of seers called Siddhars. In this system of medicine drug preparation methods, currently termed pharmaceuticals were a distinct forte. This can be gleaned from various Siddha classical literature wherein selection of drugs, meticulous descriptions on drug processing, administration methods and indications for various human ailments are explained. These cover intricacies on various inorganic pharmaceutical preparations that encompass usage of metals, non-metals, minerals, animal products and salts with or without plant drugs. These inorganic groups of drugs are usually appreciated for their smaller dosage, long shelf-life, and easy palatability, most importantly for their sustainable quicker results in wide range of degenerative and refractory diseases. Present day Siddha physicians also use many inorganic *chunnam* preparations in ailing human conditions like rheumatoid arthritis, cancer and HIV.

“Medicine” (Marundhu) in Siddha medicine is classified into thirty two internal medicines (Aga marundu) and thirty two external medicines (Pura marundu).<sup>1</sup> In modern expression these classifications would correspond to “dosage forms”. Many simple dosage forms like pills (kuligai), powders (churanam), decoctions (kudineer) and medicated oils (thailam) are very popular among physicians. However there are a few higher order dosage forms like kattu, kazhangu, *chunnam*, karpam and guru kuligai that are highly acclaimed in literature but seldom used by modern day physicians. These preparations involve tedious methodologies employing different apparatus, different kinds of heating devices and heating schedules. Because of lack of efficient gurus to impart correct knowledge and sometimes because of high cost involved these invaluable drugs have become rare. Amongst these higher order medicines, *Chunnam* is one which is highly cherished in the classics. No scientific

work has been conducted so far in this class of medicines. Recognizing its importance an effort is made in this article to detail all the important information regarding the *chunnam* preparation which will rekindle the interest of present scientific community to explore right from its therapeutic efficacy in many degenerative diseases to preparation methodology, pharmacodynamics and pharmacokinetics aspects. Many simple *chunnam* formulations were prepared in our lab and many traditional physicians were consulted to get the basic information on its preparation and therapeutics. The essential information thus gathered is detailed.

#### Chunnam as per Classics

The word ‘*chunnam*’ is indicative of an alkaline product, similar to lime. In Tamil language, caustic lime is also termed as *chunnam*. The word denotes white color (*chun*), lime (*chunnam*), fine particle and calcined paste.<sup>2</sup>

This dosage form *chunnam* is considered a medicament higher in order than *Parpam* and *Chenduram* (Calcified oxide, sulphide form of preparations). Many Siddha classics like *Bogar 7000*, *Konganavar vatha kaviyam 3000*, *Bogar saptha kandam*, *Korakkar Chandra Regai*, *Muttharam*, *Ravi Megalai* deal elaborately on this class of medicine. Many of these *chunnam* preparations are herbo-metallic origin and they are indicated not only for eradicating diseases and in casualties but also for rejuvenation. This group of drugs is considered very essential since they enter into many alchemical preparations. As per classics these preparations are considered vital since they work on *naadis* (energy channels) and are also helpful in the practice of yoga and pranayama. Many of these *chunnams* are added to other simple medicaments like *parpam* (calcined incinerated forms of metals and minerals), *ilagam* (electuary) and *thailam* preparations (oil medicaments) to increase their potency. *Chunnam* is used to prepare still higher order medicines like solidified mercurial preparation called *paadana kattu*. Proper identification of source drug and a

systemic sequential preparation methodology is considered vital while preparing chunnam<sup>3</sup>. If by chance procedural mistakes happen in grinding (araippu) or in triturating with particular plant juices for potentiation (saaranai) the result would show up in changed color of the end product. General principle advocated is to process the raw materials of particular drug with sathru sarakku of its opposite quality to decompose its structure which is termed as killing or maaranam. Then these drugs are processed with selected compatible drugs (mithru sarakku) for proper end point.

#### Raw Materials in Chunnam Preparations

Many metallic and non metallic mineral drugs of the following are made into chunnam preparations. Among these very few are available in markets. A few age old vaidyas are still preparing some of these preparations.

- Metals: gold (thangam), silver (velli), copper (chembu), iron (logam), zinc (naagam), lead (karuvangam), Tin (vel vangam), magnet (kaantham).
- Mercurials and other toxic substances: mercury (rasam), cinnabar (lingam), calomel (pooram), Mercuric per chloride (veeram), sulphur (gandagam), arsenic sulphide (manoseelai), thalagam ( $As_2S_3$ ), arsenic oxide (gouri)
- Salts (kaara saaram): fuller's earth (pooneeru), salt peter (vediuppu), alum (seenam), borax (vengaram), borneo camphor (pacchai karpooram), kalluppu (salt found in lumps on deep sea rocks), sal ammoniac (navacharum)
- Mineral origin (Uparasam): mica (abrakam), asbestos (kalnar), copper sulphate (thurusu), chalcopyrite (nimilai), crab fossil (nandukkal).
- Zoological products: kizhijal, sangu (conch shell), nandu oodu (crab shell), nathai odu (fresh water shell), muttai odu (egg shell)<sup>4</sup>

#### Preparation Method

The above naturally obtained ingredients are processed sequentially by elaborate processes like grinding, melting, triturating, quenching in different plant juices, with different heat treatments, thus changing form from one to another and in the end, making into bio-available form. Chunnamns are prepared by two different methods. One is simple and another one is complex. Chunnamns should be prepared during the hot summer months like April and May.<sup>5</sup>

#### Simple Method

In this method either lime stone or calcium group of raw materials are subjected to calcinations or incineration in putam method with cow dung cakes as specified in the formula. Commonly these medicines are used extensively by physicians; examples are chunnam of salt peter (vediuppu chunnam) and chunnam of egg shell (anda odu chunnam), which are used extensively in urinary, genital disorders and in acid peptic diseases.

#### Complex Method

A very systematic, elaborate, stepwise procedure is followed in these preparations. The metals, gems or any toxic material is detoxified as per recipe and then converted it to a fine homogenous substance by triturating with plant juices or some distillates called pugai neer or thiravagam or with any solvent (jeyneer)

and made into fine paste and are well dried. This paste is kept in distinct, specially made crucibles called moosai like Pancha chunna gugai and sealed. After drying, this crucible is heated in a hand bellows blower.<sup>6</sup> (Figure 1) After sufficient heating, generally up till a point when the crucible becomes red hot and itself gives-up its structure; the contents are allowed to cool and collected. The final product is obtained after sufficient grinding.

#### Crucibles (Moosai) Used in Chunnam

It is very interesting to note that heat resistant crucibles (moosai/ gugai) are specially made prior to chunnam preparation. Special crucible called pancha chunna gugai is prepared with chunnams of crab shell (nandu), fresh water shell (nathai), conch shell (sangu), pearl oyster shell (chippi), egg shell (anda-oodu), latex of *Calotropis gigantea* (erukkam paal), egg albumin (venkaru) and lime water (sunna neer). Anju chunna gugai, kadum chunna gugai, pancha butha gugai are few other crucibles particularly used for chunnam preparation.

#### Product Grades

The chunnam of many metal and non metal drugs are graded according to the solvents used in the preparation, the type of crucibles used and type of heating appliances used in the process of particular preparation. If the chunnam is prepared in pancha chunna gugai and incinerated with bellows blower is graded as best quality. If the chunnam is prepared with fuller's earth- (prissonite) chunnam, the drug is graded as second quality. If chunnam is prepared by the use of copper sulphate chunnam (thurusu guru chunnam), it is classified as third quality. If chunnam is prepared with caustic solvents like jayaneer, this variety is classified into 4<sup>th</sup> quality. Generally physicians prepare a special kind of solvent called chunna thiravagam to prepare all kinds of chunnams of salts, minerals, metals and various gems.<sup>7</sup>

#### Physical Properties

Both types of chunnams are in powder form and generally soft white to ivory color or colorless.<sup>8</sup> If white color is not obtained fuller's earth chunnam (savukkara chunnam) is added to get the white color. Very rarely golden yellowish color is possible as in mercurial chunnam preparation which is called as pancha sootha vagara guru.

Chunnams are odorless, lusterless, smokeless on heating, without free metals, microfine in particle size, wafer like and very light in weight. The end point or the purity of chunnam is considered very vital and generally this is ascertained by adding a pinch of turmeric (*Curcuma longa*) with few drops of water. As a rule the confirmation of end-point of chunnam preparation is to check if it turns turmeric from yellow to red perhaps as an indicator of the pH value. Turmeric contains anthocyanins curcumin, curcuminoids which act as natural pH indicator, which changes from yellow at pH 7.4 to red at pH 8.6. Chunnam also tastes like lime and will produce irritation when it comes into contact with mucous membrane. Kaaram represents its alkalinity and its caustic nature. According to its alkalinity it is graded into kara chunnam or kadunkaara chunnam. Kadunkaara chunnam is highly alkaline, caustic and is blister forming.

#### Storage

Chunnams should be kept in dry, well stoppard glass bottles.

### Shelf Life

When properly stored, they retain their potency up to 500 years.<sup>9</sup>

### Adjuvant - Anupanam

It is advised to take the chunnam medicine with ghee, butter or milk. Dosage is indicated according to the disease condition as 3 days or 7 days or 21 days.

### Uses of Chunnams

Generally chunnams are acclaimed as best possible medicaments in chronic degenerative human ailments with various adjuvants. Chunnam of salt peter, which is called as vediuppu chunnam, is used extensively by present day physicians in urinary disorders especially on urinary calculi, and in some types of malignant and non malignant tumors. Chunnam of borax which is called as vengara chunnam are highly preferred in metabolic disorders of liver and spleen diseases. Many of these chunnam preparations play a vital role in the process of higher order medicines called Kattu (solidified metals). One of the best examples is solidified mercury called sootha kattu.

Among various chunnam preparations a very few preparations are considered very indispensable as medicine and in medicine preparation, are termed as Guru chunnams. Very few drugs like gold, silver, copper sulphate, fuller's earth chunnam preparations are considered as guru chunnam and termed as thanga guru, velli guru, thurusu guru, muppu guru respectively.<sup>10</sup> Among the many uniqueness of Siddha medicine, kayakalpam or rejuvenation therapy is its epitome. Food and life style modifications with drug therapy are indicated in this line of treatment. Muppu chunnam is basic and cardinal component in these preparations of anti aging processes and also in alchemical transformations. Apart from this, muppu chunnam is also used as an adjuvant for many medicaments for chronic degenerative diseases and is a purifier of metals and minerals. Many chunnam preparations of sal ammoniac (kambi navachara chunnam), borneo camphor (karpoora chunnam), copper sulphate (thurusu chunnam), arsenic (thalaga chunnam), tin (vanga chunnam), copper (thamira chunnam), gold (thanga chunnam), mercury (rasa chunnam), mercuric per chloride (veera chunnam), mica (abrakam), magnetic ore (kantham), iron (aya chunnam), arsenic oxide sulphide (gowri), sulphur (gandagam), cinnabar (lingam), zinc (nagam) are prepared with muppu chunnam.<sup>11</sup> It is worth mentioning that very small quantity of copper sulphate chunnam (thurusu guru) is added to extract juices or latex from very dry natured plants like virali (*Dodonaea viscosa*), kuppai meni (*Acalypha indica*) and erukku (*Calotropis gigantea*).<sup>12</sup>

### DISCUSSION

It is obvious that chunnam group of preparation plays very important role in the management of many chronic refractory human ailments. Since most of the chunnams are prepared with toxic raw drugs, their quality, safety and efficacy should be ascertained with modern parameters.

The vast knowledge of repository of these therapeutic preparations of this class of medicines is based on real experiences of great Siddhas. In the current scenario,

correct processing according to the tradition plays a most important part in validating their effectiveness. Characterization on structural and elemental basis to address the role of the raw materials used during the preparation, nature of the intermediates, specific compound form at the end point, nature and particle size of the final drug should be studied in detail.

Many metal and mineral raw drugs are prepared both as parpam and chunnams. Of this, chunnam dosage form is much preferred by the classics. A detailed comparative study of parpam and chunnam are to be studied and their quality and efficacy should be ascertained in modern parameters. The specific compound or its structural form which makes the chunnam distinctive should be ascertained by various present days' analytical techniques.

The sequential processes are responsible for numerous changes which translate the toxic materials to medicines. Chemical nature of the chunnam depends upon many factors. Materials mixed, nature, quantity, purification processes, quality of heat, type of fuel, heating period, frequency of heating are some of the chief factors to be controlled. These factors should be standardized for chunnam preparations.

The remarkable features in the preparation of chunnams are the distinctive special crucibles used during preparations and use of hand bellow blower for incineration which are not used in many of the other dosage forms like parpam. The significance of these should be studied critically in the modern parameters. The crucibles used in the chunnam preparation may be playing a vital role in facilitating to increase the alkalinity of chunnams, because raw drugs used for crucibles are always calcium contained drugs. The production of heat during incineration with hand bellow blower should also be studied seriously by comparing incineration with cow dung cakes in putam bagam method which is normally done for other parpam preparations. Very exciting aspect about chunnam is its long shelf life. This should be studied and ascertained by modern parameters.

As explained in the text, pH of few chunnams which are prepared in our lab shows strong alkaline quality. For example chunnam of borax (vengara chunnam) has pH of 8.2, and chunnam of fuller's earth (pooneeru chunnam) has pH of 10.8.

It is imperative from the Siddha classics that acid-alkaline balance is crucial in human health. Biomedicine has also accepted this phenomenon. Many studies also confirm the importance of pH balance as the first and most important line of protection against sickness and disease. pH control system imparts every biochemical processes particularly the enzymatic actions in the body. Present day food habits and stressful life style makes human body to become low pH thus forming mild acidosis which is cyto-toxic. So our biological environment also becomes more anaerobic alluring infections. During the course, mineral assimilation is also suffered. The decrease in intracellular pH has been shown to reduce DNA repair activity which facilitates spontaneous mutations.<sup>13</sup> In fast growing cancer cells glycolysis proceeds to very high rate, creating excessive production of lactic acid which favors further growth of

certain types of cancer cells.<sup>14</sup> Many chronic degenerative diseases are also manifested in acidosis conditions like cardiovascular diseases, degenerative arthritis and osteoporosis. Total healing of these illnesses happens only when and if the blood is restored to normal, slightly alkaline pH. May be, that is why chunnam preparations are preferred in many chronic degenerative diseases to restore the pH balance in the body. It is noteworthy that many mineral raw drugs undergo chunnam preparations and are indicated for chronic diseases conditions. May be these drugs are helpful in correcting pH balance and also in simultaneously normalizing trace elements uptake in the body. These factors should be studied in scientific parameters.



Figure: Incineration with hand blower

## CONCLUSION

Chunnam formulations are classified as a special group of medicaments in Siddha system of medicine. Many of these preparations are considered vital since they are indispensable in preparing many intricate kattu preparations of metals and minerals. As the name suggested these formulations are highly alkaline in nature and they are indicated for many degenerative conditions. The corner stone of this group of medicine is muppu

chunnam which is vital in rejuvenation therapy and is used with all other medicaments to potentiate them. Present day Siddha physicians and scientific community should prepare many of these unexplored formulations and investigate them in scientific parameters to unearth many promising drugs for present day refractory diseases like cancer, rheumatoid arthritis, AIDS and other immune related diseases. Their role in anti-aging is noteworthy and should be studied critically. Their lies our challenges and opportunities.

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