

# BIOCHEMICAL ANALYSIS OF KAARALAVANA PARPAM

<sup>1</sup>Kanimozhi.V, <sup>2</sup>Alif Fathima.A, <sup>3</sup>Sulfin Nihar.S

<sup>1,2</sup>PG Scholar, <sup>3</sup>Associate Professor  
Department of Nanju Maruthuvam  
Government Siddha Medical College & Hospital, Palayamkottai  
Corresponding author: Kanimozhi.V

**Abstract-** The Siddha System of Medicine is a Traditional System of Medicine which comprises essentially of philosophical concepts including the four main components: Iatro-chemistry, medical practice, Yogic practice & Wisdom. The Siddha System is evolved based on 96 Tattuvams. They are considered as a science that deals with basic functions of the human body. The Classical text *Tirumanthiram* defines medicine is the one that cures physical & mental ailments, prevents diseases & the one that ensures longevity. The compound drug consists of polyherbal, herbomineral, mineral preparations. Siddhars were the pioneers in using minerals as therapeutic agents. All pharmaceutical forms of drugs & therapeutic procedures are broadly classified into 64 categories – Internal Medicine (32) & External Medicine (32). One such Siddha Internal medicine is **Kaaralavana parpam** evidenced from the textbook of “Sikicha Rathina Deepam 2<sup>nd</sup> volume Vaithiya Chinthamani, C. Kannusamy Pillai, page no: 218 evidenced from the textbook of “Sikicha Rathina Deepam 2<sup>nd</sup> volume Vaithiya Chinthamani, C. Kannusamy Pillai, page no: 218. It is a diuretic which is used to treat oedema. Parpam (Calcined oxide/Calx) are nanoparticles facilitates easy absorption & assimilation of drug. In modernized era, it is necessary to prove the safety, efficacy & pharmacological action of the Siddha drug. This Study will be helpful in evaluating further research process regarding this medicine.

**Keywords:** Siddha, Kaaralavana parpam, biochemical analysis, diuretic, oedema.

## INTRODUCTION:

Siddha Medicine is a form of Traditional Medicine originating in Southern India. The Siddha System is based on a combination of ancient medicinal practices and spiritual disciplines as well as alchemy and mysticism. The Siddha System of Medicine sees the individual as a microcosm of the universe, which is made up of the five natural elements: earth, fire, air, water & space & three humours: Vatham, Pitham, Kapham. Major formulations used in Siddha medicines are based on herbs, metals, minerals & animal origin. The Medicines are used as decoctions, infusions, powders, tablets, parpam(calx), chendhooram (calcined red oxide) and also in various forms. There are 32 types of Internal Medicines & 32 types of External Medicines are available in Siddha System of Medicine. One such Internal Medicine is KAARALAVANA PARPAM- a Siddha mineral formulation evidenced from the text “Sikicha Rathina Deepam 2<sup>nd</sup> volume Vaithiya Chinthamani, C. Kannusamy Pillai, page no: 218”. It’s a best diuretic since it has been used to treat edema by given along with tender coconut water.

## MATERIALS AND METHODS:

**Table 1:** Ingredients of Kaaralavana Parpam

S.No.	Drug Name	Chemical Name
1.	Vennkaram	Borax
2.	Vediyuppu	Potassium nitrate
3.	Padikaaram	Alum stone

### Collection, Identification and Authentication of the Drug:

The raw drug was procured from a reliable Siddha drug store. The drugs were get identified and authenticated from Siddha Central Research Institute, Chennai, Tamilnadu. KAARALAVANA PARPAM was prepared accordingly in the text “Sikicha Rathina Deepam 2<sup>nd</sup> volume Vaithiya Chinthamani, C. Kannusamy Pillai, Page no: 218”.

### Purification of the drug:

All these 3 raw drugs were purified as mentioned in the text “GUNAPADAM THATHU JEEVA VAGUPPU”.

### Preparation of the drug:

1part of Padikaaram was powdered and spread in a widened earthen pot. On top of this add 1 part of powdered Vediyuppu and upon this add 1 part of powdered Vennkaram. Heat this gently until all the water contents gets evaporated. Then set-aside for few minutes, powdered well & stored in a container.

### Chemicals and drugs:

The chemicals used in this study were of analytical grade obtained from Department of Biochemistry, Government Siddha Medical College & Hospital, Palayamkottai, Tirunelveli.

### PREPARATION OF THE EXTRACT:

100 gms of the powdered drug was weighed accurately and placed in a 250 ml clean beaker then added few drops of conc. Hydrochloric acid and evaporated well. After evaporation cooled the content and added a few drops of conc. Nitric acid and

evaporated it. After cooling the content add 20ml of distilled water and dissolved it well. Then it is transferred to 100ml volumetric flask and made up to 100ml with distilled water. Mix well. Filter it. This fluid is taken for analysis.

## RESULTS AND DISCUSSION:

**Table 2:** Biochemical analysis of Kaaralavana Parpam

S. No.	EXPERIMENT	OBSERVATION	INFERENCE
1.	<b>TEST FOR CALCIUM</b> 2ml of the above prepared extract is taken in a clean test tube. To this add 2ml of 4% Ammonium oxalate solution.	No white precipitate is formed.	Absence of calcium
2.	<b>TEST FOR SULPHATE</b> 2ml of the extract is added to 5% Barium chloride solution.	A white precipitate is formed.	Indicates the presence of Sulphate
3.	<b>TEST FOR CHLORIDE</b> The extract is treated with silver nitrate solution	A white precipitate is formed.	Indicates the presence of chloride
4.	<b>TEST FOR CARBONATE</b> The substance is treated with concentrated HCL.	No brisk effervescence is formed.	Absence of carbonate
5.	<b>TEST FOR STARCH</b> The extract is added with weak iodine solution.	No Blue color is formed.	Absence of starch
6.	<b>TEST FOR FERRIC IRON</b> The extract is acidified with Glacial acetic acid and Potassium ferro cyanide.	No blue color is formed.	Absence of ferric iron
7.	<b>TEST FOR FERROUS IRON</b> The extract is treated with concentrated Nitric acid and Ammonium thiocyanate solution.	Blood red color is formed.	Indicates the presence of ferrous iron
8.	<b>TEST FOR PHOSPHATE</b> The extract is treated with Ammonium Molybdate and concentrated nitric acid	No yellow precipitate is formed.	Absence of phosphate
9.	<b>TEST FOR ALBUMIN</b> The extract is treated with Eshbach's reagent	No yellow precipitate is formed.	Absence of albumin
10.	<b>TEST FOR TANNIC ACID</b> The extract is treated with ferric chloride.	No Blue-black precipitate is formed	Absence of Tannic acid
11.	<b>TEST FOR UNSATURATION</b> Potassium permanganate solution is added to the extract.	It does not get decolorized	Absence of unsaturated compound.
12.	<b>TEST FOR REDUCING SUGAR</b> 5ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 minutes and add 8-10 drops of the extract and again boil it for 2 minutes.	No Color change occurs.	Absence of Reducing sugar
13.	<b>TEST FOR AMINO ACID</b> One or two drops of the extract is placed on a filter paper and dried well. After	No Violet color is formed of Amino acid	Absence of Amino acid

	drying, 1% Ninhydrin is sprayed over the same & dried it well.		
14.	<b>TEST FOR ZINC</b> The extract is treated with Potassium Ferro cyanide.	No white precipitate is formed.	Absence of zinc

The results of biochemical analysis of KAARALAVANA PARPAM are tabulated above & it contains Sulphate, Chloride & Ferrous Iron.

#### Chlorides:

Chloride is absorbed in the small intestine and remains in the body's fluids and blood. It also maintains proper pH levels. It is a major mineral that works with sodium and potassium to keep body fluid levels balanced. It works by maintaining the fluid volume outside of the cells. The cells in the lining of the stomach need chloride to make hydrochloric acid, which is a component of digestive juices. Chloride channels also play a role in regulating fluid secretion, such as pancreatic juice into the small intestine and the flow of water into mucus. Chloride is essential for water balance and regulation of osmotic pressure. It is the major anion in the ECF. Sodium chloride is an essential salt used for fluid balance, tissue hydration, blood pressure maintenance & muscle contraction.

#### Sulphate:

Sulphate contributes to numerous processes in mammalian physiology, particularly during development. Sulfotransferases mediate the sulphate conjugation (sulfonation) of numerous compounds including steroids, glycosaminoglycans, proteins, neuro transmitters and xenobiotics, transforming their biological activities. Sulphate is required for proper cell growth and development of the organism. Within the body, sulphates primarily function as a conduit to build proteins in our joints, brain tissues, and muscles. It also works as a detox power house, helping to flush toxins and carry them out of the body. Sulphate is the most important macro nutrients in cells and is the fourth most abundant anion in the human plasma.

#### Ferrous iron:

Ferrous iron also known as iron, plays several crucial roles in the human body. Some of its main uses include:

- Hemoglobin production
- Myoglobin production
- Enzyme functions
- Electron transport
- DNA synthesis
- Immune system support

#### CONCLUSION:

KAARALAVANA PARPAM – a Siddha mineral formulation evidenced from the text “Sikicha Rathina Deepam 2<sup>nd</sup> volume Vaithiya Chinthamani, C. Kannusamy Pillai, page no: 218” indicated for oedema. The drug was evaluated for biochemical analysis. On evaluation, it indicates the presence of chlorides, sulphates and ferrous iron. Furthermore, pharmacological and quantitative analysis are needed to evaluate its potency & therapeutic action.

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