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Biochemical analysis of siddha herbo mineral drug *Kalludaikkudoori mathirai*

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Abstract

Siddha system is spiritual and tradititional medicine in the world. It deals with the many disease. It include 64 types of medicine (32 internal medicine and 32 external medicine). Kalludaikkudoori mathirai is one of the internal medicine that is mentioned in the siddha text book "**Siddha vaidhiyaThirattu"** which indicates for kalladaippu.
Kidney stones are hard deposits of minerals and acid salts that stick together in concentrated urine. They can be painful when passing through the urinary tract, but usually don't cause permanent damage. Kidney stones typically very painful. Most stones will pass on their own without treatment. The kidney stone produce a symptom of pain will urinating, blood in urine, Sharp pain in back or lower abdomen, Nausea and vomiting. They are 4 types of stones are formed that is calcium, uric acid, struvite and cysteine. The aim of the study was to evaluate the Bio chemical analysis of the trial drug Kalludaikkudoori mathirai and it indicates the presence of **sulphate, chloride, starch, ferrous iron, unsaturated compound and aminoacid** which revealed the enhancement of therapeutic action. The protocols should be established with proper scientific evidence based in future for mankind purpose to world.

Keywords: Kalladaippu, Siddha Medicine, Biochemical Analysis, Kalludaikkudoori Mathirai

Introduction

Now a days the scientific world turn towards to traditional medical system according to their indigenous specipicity. Siddhars are men with supernatural power in medical world.In India the popular indigenous medical system are **AYUSH (**Ayurveda,Yoga, Unani, Siddha & Homeopathy). Siddha system of medicine strictly advices food habits and its regulations as a rule along with the environmental and climatic changes.

Globally kidney disease prevalence and recurrence rates are increasing with limited options of effective drugs. Urolithiasis is affects about 12% of the world population at some stage in their life time. It affects all ages, sex,an races but occurs more frequently in men than women within the age of 20 - 49 years. If patients do not apply metaphylaxis the relapsing rate of secondary stone formations is estimated to be 10 – 23% per year, 50% in 5 – 10 years and 75 % in 20 years of the patient.However lifetime recurrence rate is higher in males, although the incidence of nephrolithiasis is growing among females. Therefore prophylactic management is of great importance to manage urolithiasis.

Recent studies have reported that the prevalence of urolithiasis has been increasing in the past decades in both developed and developing countries. This growing trend is believed to be associated with changes in lifestyle modifications such as lack of physical activity and dietary habits and global warming. In the United States kidney stone affects 1 in 11 people and it is estimated that 600000 Americans suffer from urinary stones and out of which 50 % may end up with loss of kidney functions. The chemical composition of kidney stones depends on the abnormalities in urine composition of various chemicals. Stone differ in size, shape and chemical compositions (minerology). Based on variations in mineral composition and pathogenesis.

Our siddhars paid more knowledge of herbs, metals, minerals and jeevam as they were used in curing diseases and also in alchemy. Hence I select "*Kalludaikudori Mathirai"* is mainly used in diuretic and lithotriptic activity. Evaluation on safety aspects using scientific parameters is essential to cope up with the growing scientific world.

A scientific evaluation is the need of the hour for this common medicine which is used extensively. This study will provide a scientific evidence for the safety of *"Kalludaikudori Mathirai"* to be used clinically.

Materials and Methods

100gm of *Kalludaikkudoori Mathirai* is weighted accurately and placed into a clean beaker and added a few drops of Conc. Hydrochloric acid and evaporated it well. After evaporation cooled the content and added a few drops of Conc. Nitric acid and evaporated it well. After cooling that content add 20ml of distilled water and dissolved it well. Then it is transferred to 100ml volumetric flask and made up100ml with distilled water and mix well, filter it. Then it is taken for analysis.

Ingredients of Kalludaikkudoori mathirai

Table: 1

S.No	Drug name	English Name	Chemical name	Quantity
1	Rasam	Mercury	Hydrargyrum	1 Part
2.	Kandhagam	Sulphur	Sulphur	2 Part

Table: 2

S.No.	Drug	Botanical name	Family	Part used	Quantity
1.	Seerugan Peelai	*Aervalanata*	Amaranthaceae	Whole plant	Equal amount
2.	Vellaisaranai	*Trianthema portulacastrum*	Aizoaceae	Whole plant	Sufficient amount
3.	Sakthisaranai	*Trianthema decandra*	Aizoaceae	Whole plant	Sufficient amount

Collection, Identification and Authentication of the Drug:

The required raw drugs were purchased from a well reputed country shop. They metals and minerals are identified and authenticated by Associate professor Dr. Kingsly M.D (S)., HOD, Department of PG Gunapadam, The plants are identified and authenticated by Botanist of CCRS, Government Siddha Medical College, Palayamkottai.

Purification of the Drug:

All the ingredients of herbal formulationwere purified according to the proper preparation methods described in Siddha Classical Literature.

Preparation of the Medicine:

Cleaned raw drugs are made into coarse powder, Take coarse powder and added sufficient amount of herbal juice and gentlymake into tablet form.

Biochemical analysis:

Screening the drug *KalludaikkudooriMathirai*to analysis forthe Biochemical properties present in the ingredient.

Chemicals and drugs:

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

Results

Qualitative analysis

Table: 3

S.No	Experiment	Observation	Inference
1.	**Test for calcium:** 2ml of the above prepared extract is taken in a clear test tube. To this add 2ml of 4% Ammonium oxalate solution	No White precipitate is formed.	Absence of calcium.
2.	**Test for sulphate:** 2 ml of the extract is added to 5% barium chloride solution.	A White precipitate is formed.	Indicates the presence of sulphate.
3.	**Test for chloride:** The extract is treated with silver nitrate solution.	A White precipitate is formed.	Indicates the presence of chloride.
4.	**Test for carbonate:** The substance is treated with concentrated HCl.	No brisk effervescence is formed.	Absence of carbonate.
5.	**Test for starch:** The extract is added with weak iodine solution.	Blue colour is present.	Indicates the presence of starch.
6.	**Test for iron ferric:** The extract is acidified with glacial acetic acid and potassium ferro cyanide.	No blue colour is formed.	Absence of ferric iron.
7.	**Test for iron ferrous :** The extract is treated with concentrated Nitric acid and ammonium thio cyanide solution.	Blood red colour is formed.	Indicates the presence of ferrous iron.
8.	**Test for phosphate:** The extract is treated with ammonium molybdate and concentrated nitric acid.	No yellow precipitate is formed.	Absence of phosphate.
9.	**Test for albumin:** The extract is treated with Esbach's reagent.	No yellow precipitate is formed.	Absence of albumin.
10.	**Test for tannic acid:** The extract is treated with ferric chloride.	No blue black precipitate is formed.	Absence of Tannic acid.
11.	**Test for unsaturation:** Pottassium permanganate solution is added to the extract.	It gets decolourised.	Indicates the presence of unsaturated compound.
12.	**Test for the reducing sugar:** 5 ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 mins and add 8 – 10 drops of the extract and again boil it for 2 mins.	No colour change occur.	Absence of reducing sugar.

13.	**Test for amino acid:** One or two drops of the extract is placed on a filter paper and dried it well. After drying 1% Ninhydrin is sprayed over the same and dried it well.	Violet colour is formed.	Indicates the presence of amino acid.
14.	**Test for zinc:** The extract is treated with potassium ferrocyanide.	No white precipitate is formed.	Absence of zinc.

Discussion

The Bio chemical analysis of the trial drug *Kalludaikkudoori Mathirai* was tabulated above in table 3.

The trial drug *Kalludaikkudoori Mathirai* contains

1. Sulphate
2. Chloride
3. Starch
4. Ferrous iron
5. Unsaturated compound
6. Amino acid

Mode of action of the trial drug *Kalludaikkudoori Mathirai* which brings treats the *kalladaippu* (Renal stone) and diuretic action in the body. May be due to the presence of **Sulphate, chloride, starch, Ferrous iron, unsaturated compound, and Amino acid in it**.

Conclusion

Kalludaikkudoori Mathirai is a Siddha drug taken from a Siddha literature used in the treatment of Kalladaippu (Renal stone). The drug is screened for its bio chemical properties. Further, comprehensive pharmacological analysis are needed to evaluate its potency and the drug has its own potency to undergo further research.

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