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Research article

# Qualitative chemical analysis of Siddha polyherbal drug *Panchadeepakini chooranam*

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## ABSTRACT

Diarrhoea in children is most important pathological condition in pediatrics.Because, it is second leading cause of death among children under 5 years of age. Globally, there were about 2.5 million death occur per year in every quarter of all childhood death. The causative micro organisms were bacteria ,virus and parasites. Among this Salmonella, Shigella were common. Bacillary dysentery is caused by shigella species characterized by diarrhoea along with blood and mucus. In our classical siddha literature, Balavagadam the diseases of children are broadly classified into Agakarana noigal and Purakarananoigal. Kalichal is one among the Purakarana noigaland is divided into three types- maanthakalichal, kana kalichal and aamakalichal. Aamakalichal is a commonly occurring disease in infants and children. In pillaipini maruthuvam, an indication for Aamakalichal is Panchadeepakini chooranam which is purely a herbal medicine. The qualitative chemical analysis of the trial drug is essential as it is helpful for further clinical studies. The biochemical analysis of the trial drug indicates the presence of calcium, sulphate, Chloride, Starch, Ferrous Iron, Unsaturated Compound, Amino Acid revealed the enhancement of therapeutic action in Aamakalichal

**Keywords:**

Siddha system, *Aamakalichal*, Panchadeepakini chooranam, Diarrhoea, Biochemical analysis.

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## INTRODUCTION

Among the gastrointestinal disorders in children, diarrhoeal disorder is notable disease as it accounts for second leading cause of mortality in children. According to World Health Organization (WHO), estimation of about 1.5 billion episodes of diarrhea with 3 billion mortality occur every year in developing countries. The causative agents include bacteria, virus and parasites. Among bacterial infections, shigella ,salmonella were the important cause. Since diarrhea. The increased peristaltic movements in diarrhea may lead to poor absorption results in malabsorption, poor cognitive development and academic outcomes. The ultimate aim is to reduce infant and child rate of deaths, control the spread of infectious disease, promote healthy lifestyles for a long disease-free life and help ease the problems of children and adolescents. In siddha system of medicine, Kuzhanthai maruthuvam is the branch of medicine dealing with the health and medical care of infants, children. Kalichal is one among the Purakarananoigal and is divided inti three types- maanthakalichal, kana kalichal and aamakalichal. Aamakalichal is a commonly occurring disease in infants and children. A detailed search on siddha literatures for the treatment of aamakalichal gives a purley herbal medicine panchadeepakini chooranam in the literature pillaipini maruthuvam. Though lot of medicines available for Aamakalichal, panchadeeapkini chooranam which is purely herbal, easily available drug and economically low.

## MATERIALS AND METHODS

**Table:1 Ingredients of Pancha deepakini Chooranam**

| Drug Name | Botanical Name |
|---|---|
| *Maankottaiparupu* | *Mangifera indica* |
| *Karuvepillaiilia* | *Murraya koenigii* |
| *Sundaikaivatral* | *Solanum torvum* |
| *Vendhayam* | *Trigonella foenumgraecum* |
| *Omam* | *Carum copticum* |

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

The required raw drugs were also purchased from a well reputed country shop. They were authenticated by Botany faculties of Government Siddha Medical College, Palayamkottai.

**Purification of the Drug:**

All the ingredients of this herbal formulation were purified according to the proper procedure such as air drying and removing dust particlesdescribed in Siddha Classical Literature.

**Preparation of the drug:**

All this drug individually purified as per the textual reference and then prepared as a fine powder and then mixed together and bottled up in a air tight container.

**Biochemical analysis:**

Screening the drug *Panchadeepakini chooranam*to identify the Biochemical properties present in the ingredient.

**Chemicals and drugs:**

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

**Methodology for biochemical analysis:**

5 grams of the drug was weighed accurately and placed in a 250ml clean beaker. Then 50ml of distilled water added to it and dissolved well. Then it was boiled well for about 10 minutes. It was cooled and filtered in a 100ml volumetric flask and then it is made upto 100ml with distilled water. This fluid was taken for analysis.

## RESULTS AND DISCUSSION

The Bio chemical analysis of the trial drug *Panchadeepakini chooranam* was tabulated above in table 2.The trial drug *Panchadeepakini chooranam*contains,

1. Starch
2. Ferrous Iron
3. Unsaturated compound
4. Amino Acid
5. Calcium
6. Chloride
7. Sulphate

The mode of action of the trial drug *Panchadeepakini chooranam* which brings about the pigmentation of skin in body, may be due to the presence of Sulphate, starch, Ferrous Iron ,Unsaturated compound, Amino Acid, calcium, chloride in it. The study of calcium in diarrheal disorders suggest that Calcium stool losses should be routinely replaced as is currently done for sodium, chloride, potassium, carbonate, and zinc and calcium has the effect of reducing diarrhea.

## CONCLUSION

*Panchadeepakini chooranam*is a Siddha Drug taken from a Siddha literature used in the treatment of *Aamakalichal.* The drug is screened for its bio chemical properties. Further, comprehensive pharmacological studies are needed to evaluate its potency and the drug has its own potency to undergo further research.

Table 2. Qualitative analysis of *Panchadeepakini Chooranam*

| EXPERIMENT | OBSERVATION | INFERENCE |
|---|---|---|
| **TEST FOR CALCIUM** 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. |
| **TEST FOR SULPHATE :** 2ml of the extract is added to 5% Barium Chloride solution | white precipitate is formed | Indicates the presence of sulphate |
| **TEST FOR CHLORIDE** The extract is treated with silver nitrate solution. | No white precipitate is formed | Absence of chloride. |
| **TEST FOR CARBONATE** The substance is treated with concentrated Hcl. | No brisk effectivessence is formed | Absence of Carbonate |
| **TEST FOR STARCH** The extract is added with weak iodine solution | Blue Colour is formed. | Indicates the present of Starch |
| **TEST FOR FERRIC IRON** The extract is acidified with Glacial acetic acid and potassium ferro cyanide. | No blue color is formed. | Absence of ferric iron |
| **TEST FOR FERROUS IRON** The extract is treated with concentrated Nitric acid and Ammonium thiocyanate solution. | Blood red colour is formed. | Indicates the presence of ferrous Iron. |
| **TEST FOR PHOSPHATE** The extract is treated with Ammonium Molybdate and concentrated nitric acid | No yellow precipitate is formed | Absence of Phosphate |
| **TEST FOR ALBUMIN** The extract is treated with Esbach's reagent | No yellow precipitate is formed. | Absence of Albumin. |
| **TEST FOR TANNIC ACID** This extract is treated with ferric chloride. | No blue back precipitate is formed | Absence of tannic acid. |
| **TEST FOR UNSATURATION** Potassium permanganate solution is added to the extract. | It gets decolourised | Indicates the presence of unsaturated compound |
| **TEST FOR THE REDUCING SUGAR** 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 | Colour change occurs | Indicates the presence of Reducing sugar |
| **TEST FOR AMINO ACID** One or two drops of the extract is placed on a filter paper and dried well. After drying 1% Ninydrin is sprayed over the same and dried it well. | Violet colour is formed. | Indicates the presence of Amino Acid. |
| **TEST FOR ZINC :**The extract is treated with Potassium Ferro cyanide. | No white precipitate | Absence of Zinc. |

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## CONFLICTS OF INTEREST

None declared.

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