



BIOCHEMICAL ANALYSIS OF SIDDHAR KAYAKARPAM - INJI THEAN

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ABSTRACT

Kayakarpam is an elixir treatment of siddha technique that completely detoxify the body by replenishing the cellular physiology and boosting the immune system. Kayakarpam has developed an immense interest in the area of research. An in depth analysis of kayakarpam will unravel many novel ideas in the management of untreatable diseases. Due to rapid industrialization and urbanization the burden of non communicable diseases have been exploding at an alarming rate. We are at crucial juncture of efficient management of the disease burden .Siddhar kayakarpam provides holistic approach in treating and preventing the disease ailments. The study drug Inji thean was taken from classical siddha literature Theraiyar Segarappa first edition which is a pothu (General) karpam. This study aims to identify the biochemical properties of the siddhar kayakarpam Inji thean.

KEYWORDS: Kayakarpam, Ginger, Honey, Injithean, Biochemical analysis.

INTRODUCTION

Siddha system of medicine which is one among the oldest system of medicine that has pre ayurvedic period of origin around 10000 years back. It is mainly rooted on the philosophies of iym boothangal (5 Elements) and 96 thathuvangal. Kayakarpam is the crown of siddha system which emphasizes on rejuvenation of the body and delays the biological ageing. Any drug or medicine taken for competing against grey hair and geriatric diseases and promoting longevity of life is called kayakarpam (Panacea).^[1] Regular intake of kayakarpam detoxifies the body completely by restoring the cellular functioning and enhancing the immunity. It is mainly classified into pothu karpam (General) and sirappu karpam (Special). Pothu karpam improves the general health of the

individual, slows down ageing and increase the lifespan. Sirrapu karpam treats the specific diseases and derangements of three humors vazhi, azhal and iyam in the body and bring out harmony of the individual.^[2] The study drug Inji thean comes under pothu karpam which enhances the general health of the individual. Scientific validation is needed to use this drug extensively in clinical practice and this is a peer step in the standardization of study drug.^[6] This study is to examine the biochemical analysis of siddhar kayakarpam Inji thean.

MATERIALS AND METHODS

The study drug Inji thean was chosen from a classical siddha literature Theraiyar Segarappa first edition.

Trial drug

Internal medicine: "Inji thean"

| S. No. | Drug | Botanical name | Family | Part used | Quantity |
|--------|-------|---------------------|---------------|-----------|-------------------|
| 1 | Inji | Zingiber officinale | Zingiberaceae | Rhizome | 1 kilograms |
| 2 | Honey | - | - | - | Required quantity |

Source of drug ingredients

The required raw drugs for preparation of Inji Thean (Internal Medicine) was purchased from a well reputed country shop. The purchased drugs was authenticated by The Faculty / Expert members of Medicinal Botany and Gunapadam Department at GSMCH- Palyamkottai.

Methods of Purification and Preprations

The ingredient was completely purified as per the Siddha literature in the presence of Guide / Faculty members. Then the trial drug was prepared from the purified ingredient.

Drug storage

The trial drug “**Inji Thean**” was stored in clean and dry air tight containers.

METHODOLOGY

Biochemical analysis

Screening the siddhar kayakarpan Inji thean to identify the biochemical constituents of the drug.

Preparation of the extract

250ml clean beaker was taken and 5gms of inji thean was weighed accurately and 50ml of distilled water is added and allowed to dissolve well. Then the mixture is boiled well for 10 minutes. It is allowed to cool. 100ml of volumetric flask was taken and then the filtrate is made to 100ml with distilled water. Then the liquid is taken for analysis.

| S. no. | Experiment | Observation | Inference |
|--------|--|--------------------------------------|--|
| 01 | Test for calcium 2ml of the above prepared extract is taken in a clean test tube. To this 2ml of 4% ammonium oxalate solution is added. | A white precipitate is formed. | Indicates the presence of calcium |
| 02 | Test for sulphate 2ml of the extract is added to 5% barium chloride solution. | A white precipitate is formed. | Indicates the presence of sulphate. |
| 03 | Test for chloride The extract is treated with silver nitrate solution. | A white precipitate is formed. | Presence of chloride |
| 04 | Test for carbonate The substance is treated with concentrated hydrochloric acid. | No brisk effervescence is formed. | Absence of carbonate. |
| 05 | Test for starch The extract is treated with weak iodine solution. | No blue colour is formed. | Absence of starch |
| 06 | Test for ferric iron The extract is acidified with glacial acetic acid and potassium ferro cyanide. | No blue colour is formed. | Absence of ferric iron |
| 07 | Test for ferrous iron The extract is treated with concentrated nitric acid and ammonium thiocyanate solution. | No blood red colour is formed | Absence of ferrous iron |
| 08 | Test for phosphate the extract is treated with ammonium molybdate and concentrated nitric acid. | no yellow precipitate is formed. | Absence of phosphate |
| 09 | 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 Potassium permanganate solution is added to the extract. | It gets decolourised | Presence of unsaturated compound |
| 12 | 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 then 8-10 drops of the extract are added. It is again boiled for 2 minutes. | Colour changes occur. | Presence of reducing sugar. |
| 13 | Test for amino acid One or two drops of the extract is placed on a filter paper and dried well. After drying, 1% ninhydrin is sprayed over the same and it is dried well. | Violet colour is formed. | Indicates the presence of amino acids. |
| 14 | Test for zinc The extract is treated with potassium ferro cyanide. | No white precipitate is formed. | Absence of zinc. |

RESULTS AND DISCUSSION

The biochemical analysis of INJI THEAN contains

1. Calcium.
2. Sulphate.

3. Chloride.
4. Unsaturated compound.
5. Reducing sugar.
6. Amino acid.

Calcium

Calcium plays a vital role in obesity management. The possible anti-obesity mechanisms of calcium, includes

- (a) regulation of adipogenesis, with stimulation on mscs (or commitment stage) and inhibition on preadipocytes (or differentiation stage) B) modulation of fat metabolism, with decreased fat synthesis (lipogenesis) and increased fat breakdown (lipolysis)
- (b) promotion of adipocyte (precursor) proliferation and/or apoptosis
- (c) enhancement of thermogenesis, with increased BAT activation and WAT browning
- (d) suppression of fat absorption and promotion of fecal fat excretion
- (e) modification of gut microbiota composition and diversity.^[7]

Sulfate

Some sulfur-containing antioxidant function to decrease the levels of harmful ROS and help to reduce intracellular protein disulfide bonds which are formed as a result of increased ROS levels. Therefore, sulfur containing antioxidants are essential in the maintenance of normal well-being of the cell and health.^[4]

Chloride

Chloride (Cl⁻) is the most abundant ion in humans after sodium and accounts for 70% of the total anions in extracellular fluid (ECF). Cl⁻ are vital for maintaining osmotic pressure, muscle movement, and acid-base balance in the body.^[5]

Reducing sugars

Reducing sugars may be operationally described as sugars containing functional groups capable of being oxidized and, in turn, bringing about reduction of other components under specific analysis conditions.^[8]

Unsaturated compounds

Unsaturated compounds lowers the cholesterol and reduces the risk of heart disease.

Amino acids

Amino acids are the building block of proteins and constitute the major class of nitrogen-containing natural products of medicinal importance. They exhibit a broad spectrum of biological activities, including the ability to activate NRF2, a transcription factor that regulates endogenous antioxidant responses. It act as synergistic antioxidants as part of dietary supplementations.^[3]

This analysis shows that the presence of calcium, sulphate, chloride, unsaturated compound, reducing sugar and aminoacids in the study drugs promotes and enhances the therapeutic action of Inji thean.

CONCLUSION

The study drug Inji Thean is described as siddhar kayakarpam by Theraiyar. Inji thean is screened for its biochemical activities. Presence of calcium, sulfate, chloride, aminoacids, unsaturated compounds and amino acids was detected. Further phytochemical, physiochemical analysis, and toxicity has to be done for standardizing the study drug.

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