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Phytochemical analysis of Thaleesadi chooranam

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Abstract

Thaleesadi is a traditional siddha formula that contains the ingredients of Thaleesadi, black pepper, and ginger. Like its counterpart it supports the immune system and overall health and well-being. Thaleesadi offers additional heat for enkindling the digestive fire, burning (natural toxins), and helping to maintain a normal body temperature. Thaleesadi is an excellent herb for the lungs making the formula especially good for supporting healthy respiration. It also helps promote abdominal comfort, absorption, and healthy stool formation.

Keywords: Thaleesadichooranam, Herbs, siddha, phytochemical

Introduction

Siddha System of Medicine also known as Siddha Vaidya in India, is the oldest among the Indian Medical Systems. It is about 10,000 years old. The word 'Siddha' comes from 'Siddhi' which means an object to be attained or perfection of heavenly bliss.

Siddha can be termed as a scientific art, which was founded by siddhars or evolved souls (numbering 18) who lived in the past. Of these 18 Siddhars, Agasthiyar is considered the foremost and his work is considered as outstanding in Siddha Medicine. More than just a medical system, Siddha is a method dealing with intense spirituality and immense possibility for the betterment of human beings. In short, Siddha medicine means 'Medicine that is eternally perfect'.

Keep the particle in the sunlight which is suitable and heat the particle than toast and which is suitable break them into powder and filter it the equalization to mixed the sugar.

The reference of this medicine is

Agasthiyarrethnachurukkam.

Indication : Gastritis, Cholic, Flatulence, Excessive thirst, cough and Indigestion, vatham 80, pitham 40, kabam 96, bronchial asthma.

Dose: 1 gm with Honey twice a day.

Materials and Methods

Ingredients:

Thaleesadi churnam

This Multi-herbal siddha medicine is prepared out of

| ENGLISH NAME | TAMIL NAME | BOTANICAL NAME |
|------------------|----------------------------------|---|
| Yew Leaves | Thaleesam | Abiesspectabilis |
| Cinnamon Bark | Lavangapatai | Cinnamomumverum |
| Cardamom | elam | Elettariacardamomum |
| Three pungent | Thrikaduku(sukku,milagu,thippli) | Zingiferofficinale, Piper nigrum Piper longum |
| Liquorice | Athimadhuram | Glycyrrhizin glabra |
| Asafoetida | perungayam | Ferula asafoetida |
| Costus | kottam | Costusspeciosus |
| Cumin | jeerakam | Cumimumcyminum |
| Dill seeda | Sathakuppa | Anethumgraveolens |
| Nagella seeds | karumjeerakam | Cumimumcyminum |
| Long Pepper Root | Thippilimoolam | Piper longum |
| Cloves | Lavangam | Cinnamomumverum |
| Mace | Jathipathri | MyristicaFragrans |
| Chineese Galls | Karkidakasringi | Rhus succedanea |
| Nutmeg | Jathikkai | MyristicaFragrans |
| Indian spikenard | Jadamanjil | NardostachysJatamansi |
| Cinnamon Buds | Slrunagapoo | CinnamomumWightii |
| Chembaka Buds | Chembakamokku | MicheliaChampaca |
| Embelia Fruits | Vayvidangam | Embeliaribes |
| Cinnamod Leaves | LavangaPathiri | Cinnamomumverum |
| Ajowan | Omum | Trachyspermumammi |
| Corriander | Dhaniya - Malli | Coriandrumsativum |
| Cane Sugar | Sarkkarai | |

Basic Information:

| | |
|------------------|--|
| Main Indication | Cough |
| Potential Action | Bronchodilatory, Mucolytic, Antitussive |
| Dosage | 1 to 3 grams |
| Best Adjuvant | Honey in productive cough & Ghee (Clarified Butter) in dry cough |

ThaleesadiChurna has following the medicinal action:

- Bronchodilator
- Antitussive
- Expectorant
- Anti inflammatory
- Mucolytic
- Anti viral
- Anti microbial
- Anti bacterial
- Carminative

Dosage:

The dosage of ThaleesadiChurna may vary according to the age, health condition and body weight of the patient. Here is general dosage of ThaleesadiChurna is given:

| | |
|----------|--------------------------|
| Infants | 50 mg per Kg body weight |
| Children | 500 mg to 1 gram |
| Adults | 1 gram to 3 grams |

Twice a day with appropriate adjuvant according to the health condition.

(QUALITATIVE ANALYSIS PROCEDURE)

Carbohydrates Kokate, 1994)

Fehling's Test: 1 ml Fehling's A solution and 1 ml of Fehling's B solution were mixed and boiled for one minute. Then the equal volume of test solution (extract) was added to the above mixture. The solution was heated in boiling water bath for 5-10 minutes. Colour changed from yellow to brick red.

Kokate, C. K. 1994. Practical Pharmacognosy, 4th edition, VallabhPrakashan, New Delhi. 4 - 29.

Proteins (Ansari, 2006)

Xanthoproteic Test: To the small quantity of extract, 1ml of conc. H_2SO_4 was added, resulted in the formation of white precipitate which on boiling turned yellow. On addition of NH_4OH , yellow precipitate turned orange.

Ansari, S. H. 2006. Essentials of pharnacognosy, 1st edition, Birla publications, New Delhi. pp. 357-359, 588-590.

Glycosides (Ansari, 2006)

Keller-Killiani Test: To 2 ml of the extract, glacial acetic acid, one drop 5% $FeCl_3$ and conc. H_2SO_4 was added. Reddish brown colour appeared at junction of two liquid layers and upper layer turned bluish green indicating the presence of glycosides.

Ansari, S. H. 2006. Essentials of pharnacognosy, 1st edition, Birla publications, New Delhi. pp. 357-359, 588-590.

Steroids (IP, 1996)

Salkowski Test: To 2 ml of extract, 2 ml of chloroform and 2 ml of conc. H_2SO_4 was added. The solution was shaken well. As a result chloroform layer turned red and acid layer showed greenish yellow fluorescence.

Indian Pharmacopoeia (IP). 1996. Govt. of India, Ministry of Health and Family Welfare Published by the Controller of Publications, New Delhi, A-47, A-53, A-54.

Flavanoids (Kokate, 1994)

Shinoda Test:

To the extract, 5 ml of 95% ethanol and few drops of concentrated hydrochloric acid was added. To this solution 0.5 gm of magnesium turnings were added. Pink colouration indicated the presence of flavanoids.

Kokate, C. K. 1994. Practical Pharmacognosy, 4th edition, VallabhPrakashan, New Delhi. 4 - 29.

Tannins (Mukherjee, 2002)

Lead Acetate Test: On addition of lead acetate solution to the extract white precipitate appeared.

Mukherjee, P. K. 2002. Quality control of herbal drugs, business horizons pharmaceutical publishers, New Delhi. 356 - 358.

Saponin (Ansari, 2006)

Foam Test: Drug extract was shaken vigorously with water. No persistent foam was formed.

Ansari, S. H. 2006. Essentials of pharnacognosy, 1st edition, Birla publications, New Delhi. pp. 357-359, 588-590.

sugar test

Benedict's Test: Equal volume (2ml each) of Benedict's solution and extracts were mixed in a test tube and heated in boiling water bath for 10min the changes in colour to yellow, green and red indicates the presence of reducing sugars.

Phenol test

Ferric chloride Test (Mukherjee, 2002)

To 3 ml of extract, 3 ml of 5% w/v ferric chloride solution was added. The blue – black colour indicates the presence of phenol.

Mukherjee, P. K. 2002. Quality control of herbal drugs, business horizons pharmaceutical publishers, New Delhi. 356 - 358.

Quantitative procedure

Estimation of carbohydrate (Miller, 1972)

100 mg of sample was weighed and sugars were extracted with hot 80% alcohol twice (5 ml each time). The supernatant was collected and evaporated on water bath and makeup the volume with 3 ml of water. 3 ml of Dinitrosalicylic acid (DNS) reagent was mixed with sample and heated for 5 minutes in a boiling water bath. After the colour development 1ml of 40% Rochelle salt (sodium-potassium tartarate) was added. The tubes were cooled under running tap water and measure the absorbance at 510 nm. The standard graph was plotted for working standard glucose solution (0 to 100µg/µl).

Miller, G. L. 1972. Use of DNS reagent for the determination of glucose. *Anal. Chem.* 31: 426 - 428.

Estimation of flavanoids (Kariyon *et al.*, 1953)

Total flavanoids content was determined by aluminium chloride method using catechin as a standard. 1ml of test sample and 4 ml of water were added to a volumetric flask (10 ml volume). After 5 minutes 0.3 ml of 5% sodium nitrite, 0.3 ml of 10% aluminium chloride was added. After 6 minutes incubation at room temperature, 2 ml of 1 M sodium hydroxide was added to the reaction mixture. Immediately the final volume was made up to 10 ml with distilled water. The absorbance of the reaction mixture was measured at 510 nm spectrophotometrically. Results were expressed as catechin equivalents (mg catechin/ g dried extract).

Kariyon, T., Hashimoto, Y and Kimura, M. 1953. Microbial studies of plant components. IX. Distribution of flavanoids in plants by paper chromatography. *J. Pharma. Soc. (Japan)*. 7: 253 - 256.

Estimation of tannins (Robert, 1971)

1 ml extract was mixed with 5 ml of vanillin hydrochloride reagent (mix equal volumes of 8% HCL

in methanol and 4% vanillin in methanol). The mixture was allowed to stand for 20 minutes and measure the absorbance at 500nm. The standard graph was plotted for working standard catechin solution (0 to 250 µg/µl).

Robert, E. B. 1971. Method for estimation of tannin in *Grain sorghum*. *Agro.J.* 63 : 510 – 511.

Quantitative Estimation of Reducing Sugars by DinitroSalicylic Acid Method: (Miller, G.L. 1972. *Anal. Chem.*:426.)

100mg of the sample was weighed and sugars were extracted with hot 80% alcohol twice(5ml each time). The supernatant was collected and evaporated on water bath and makeup the volume with 3ml of water. 3ml of Dinitrosalicylic acid (DNS) reagent was mixed and heated for 5mins in a boiling water bath. After the colour development 1ml of 40% Rochelle salt (sodium-potassium tartarate) was added. The tubes were cooled under running tap water and measure the absorbance at 510nm using reagent blank adjusted to zero. The standard graph was plotted for working standard glucose solution (0 to 100µg/µl).

Ref: Miller G L (1972) Use of DNS reagent for the determination of glucose. *Anal. Chem.* 31: 426-428.

Quantitative Estimation of Amino acid

Total free amino acid content of freshly collected frozen tissues of aThaleesadichooranam was estimated by ninhydrin method (Moore and Stein, 1948). To suitable aliquots of thechooranam extract, water was added to make the total volume to 4.0 mL. To this, 1.0 mL of ninhydrin reagent was added, mixed and kept in a boiling water bath for 15 minutes. The tubes were then removed, cooled and 1.0 mL of 50% ethanol was added. The pink color developed was measured at 550 nm.

Ref: Moore, S., and Stein, W. H.: Photometric Ninhydrin Method for Use in Chromatography of Amino Acids , *J BiolChem* 176:367-388 ((Oct.)) 1948

Qualitative analysis

| TEST | RESULT |
|----------------|---------|
| CARBOHYDRATE | Present |
| REDUCING SUGAR | Absent |
| PROTEIN | Absent |
| AMINOACID | Present |
| TANNIN | Absent |
| STEROIDS | Absent |
| SAPONINS | Absent |
| GLYCOSIDES | Absent |
| FLAVANOIDS | Present |
| PHENOLS | Absent |

Quantitative result

| TEST | RESULT |
|--|----------------------------------|
| Carbohydrate (mg/ml) | 46.5 (mg/ml) |
| Aminoacid ($\mu\text{g}/\text{ml}$) | 40.5 ($\mu\text{g}/\text{ml}$) |
| Flavanoids ($\mu\text{g}/\text{ml}$) | 50 ($\mu\text{g}/\text{ml}$) |

Phytochemical compounds of medicinal drugs:**carbohydrate:**

Carbohydrates perform numerous roles in living organisms. Polysaccharides serve for the storage of energy (e.g. starch and glycogen) and as structural components (e.g. cellulose in plants and chitin in arthropods).

In food science and in many informal contexts, the term carbohydrate often means any food that is particularly rich in the complex carbohydrate starch (such as cereals, bread and pasta) or simple carbohydrates, such as sugar (found in candy, jams, and desserts).

Carbohydrates are found in a wide variety of foods. The important sources are cereals (wheat, maize, rice), potatoes, sugarcane, fruits, table sugar (sucrose), bread, milk, etc. Starch and sugar are the important carbohydrates in our diet. Starch is abundant in potatoes, maize, rice and other cereals. Sugar appears in our diet mainly as sucrose (table sugar) which is added to drinks and many prepared foods such as jam, biscuits and cakes. Glucose and fructose are found naturally in many fruits and some vegetables. Glycogen is carbohydrate found in the liver and muscles (as animal source). Cellulose in the cell wall of all plant tissue is a carbohydrate. It is important in our diet as fibre which helps to maintain a healthy digestive system.[9]

Protein:

Protein is an important component of every cell in the body. Hair and nails are mostly made of protein. Your body uses protein to build and repair tissues. You also use protein to make enzymes, hormones, and other body chemicals. Protein is an important building block of bones, muscles, cartilage, skin, and blood.

Along with fat and carbohydrates, protein is a "macronutrient," meaning that the body needs relatively large amounts of it. Vitamins and minerals, which are needed in only small quantities, are called "micronutrients." But unlike fat and carbohydrates, the body does not store protein, and therefore has no reservoir to draw on when it needs a new supply.

Flavonoids:

Flavonoids (or bioflavonoids) (from the Latin word flavus meaning yellow, their color in nature) are a class of plant and fungus secondary metabolites.

The three flavonoid classes above are all ketone-containing compounds, and as such, are anthoxanthins (flavones and flavonols). This class was the first to be termed bioflavonoids. The terms flavonoid and bioflavonoid have also been more loosely used to describe non-ketone polyhydroxy polyphenol compounds which are more specifically termed flavanoids. The three cycle or heterocycles in the flavonoid backbone are generally called ring A, B and C. Ring A usually shows a phloroglucinol substitution pattern.

Flavonoids are a diverse group of phytonutrients (plant chemicals) found in almost all fruits and vegetables. Along with carotenoids, they are responsible for the vivid colors in fruits and vegetables. Flavonoids are the largest group of phytonutrients, with more than 6,000 types. Some of the best-known flavonoids are quercetin and kaempferol.

Results and Discussion**Phytochemical analysis:**

All the phytochemicals screened for qualitative analysis were present in the phytochemicals for Carbohydrate, Amino acid, Flavanoids of Thaleesadichooranam.

The results of quantitative analysis of the highest amount of carbohydrates (46.5 mg/ml) was recorded in the chooranam. Similarly the rich amount of amino acid 40.5 ($\mu\text{g}/\text{ml}$) and flavonoids 50 ($\mu\text{g}/\text{ml}$) in the thaleesadichooranam.

The study confirms the use of thaleesadichooranam in traditional siddha medicine for various respiratory disease. Results of the present study are suggesting the thaleesadichooranam under investigation predominantly inhibit the release of bronchitis and respiratory diseases.

Conclusion

This study emphasized the need to carryout in depth phytochemicals and pharmacological evaluation of thaleesadichooranam and as certain their claims in the light of modern scientific understanding such that their potentials may be tapped for better use as alternate and safe herbal medicines.

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First I would like to thank our god for giving me the strength to finish this study.

To my family ,especially to my father, mother, and my guardian Mohan and my dear friend Suganya.

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