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Phytochemical Analysis Of Paruthividhai Chooranam

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Abstract

The paruthivithai choornam is one of the ancient siddha formulation prepared using *Gossypium hirsutum* [cotton seed] *Feronia elephantum* [wood apple] *Oryza sativum* [rice] *Piper longum* [long pepper] *Elettaria cardamomum* [cardamom] .this preparation acts on digestive system and treats hiccups and vomiting scientific standardization of paruthivithaichooranam is not yet studied. In the present study qualitative phytochemical revealed the presence of reducing sugar, amino acid, flavonoid.

Keywords: Paruthividhai choornam, Siddha formulation, Phyto chemical.

Introduction

India having a rich legacy of traditional medicine constituting with its different components like siddha, Ayurveda, unani. The siddha system of medicine is the most holistic medical system in the world .it is the mother of all healing arts in our planet and it predates of all healing systems .herbal based conventional mended are highly recommended by world health organization because of their efficacy safety and quality will help not only to preserve the traditional heritage but also to rationalize the use of natural products in health care . Paruthivithai choornam is an ancient polyherbal plant of vila arisi, nerpoori, thiphili, elam.

In conventional system these medicines have a reducing sugar, amino acid, flavonoid.

Materials and Methods

Ingredients:

Paruthivithai [*Gossypium arboretum*]
Vila [*Limonia acidissima*]

Nel [*Oryza sativa*]
Thipili [*Piper longum*]
Elam [*Elettaria cardamomum*]

Paruthivithai choornam is a herbal formulation which is indicated as a drug in siddha text. Siddha vaidhyathirattu for the treatment of vomiting ,hiccups the ingredients of paruthivithai choornam are five in number. they are paruthivithai [*Gossypium arboretum*] vila [*limonia acidissima*], nel [*Oryza sativa*], thippilli [*Piper longum*], elam [*Elettaria cardamomum*] powder the drug was prepared as per the text

The reference of this medicine is;

Siddha vaidhyathirattu

Dose:

1 gm with Honey twice a day

| Botanical name | Tamil name | English name |
|-----------------------------|---------------|---------------------|
| <i>Gossypium hirsutum</i> | Paruthivithai | Indian cotton plant |
| <i>Limonia acidissima</i> | Vila | Wood apple |
| <i>Oryza sativa</i> | Nel | Paddy |
| <i>Piper longam</i> | Thipilli | Long pepper |
| <i>Elettaria cardamomum</i> | Elam | Cardamom seeds |

Indication;

Vomiting
Hiccups

Benefits;

Rich in fibre, proteins, fat
Best for Breast feeding moms
Regulates menstrual cycle
Best for cold cough during rain season
It helps in reducing body heat
It helps in healing stomach ulcer
Best alternate for animal fat allergic people

Procedure;

Qualitative analysis

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.

Proteins (Ansari, 2006)

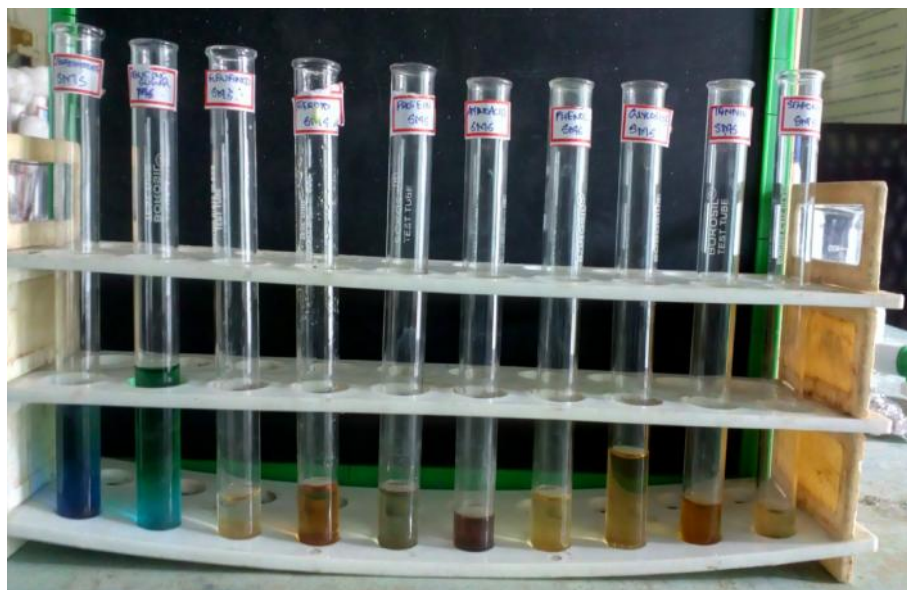
Xanthoproteic Test: To the small quantity of extract, 1ml of conc. H_2SO_4 was added, resulted in the formation of white precipitate which on boiling turned yellow. On addition of NH_4OH , yellow precipitate turned orange.

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.

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.



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.

Tannins (Mukherjee, 2002)

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

Saponin (Ansari, 2006)

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

Reducing 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.

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).

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).

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).

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).

Quantitative Estimation of Amino acid (Moore, S., and Stein, W. H.1948)

Total free amino acid content of freshly collected frozen tissues of algae was estimated by ninhydrin method (Moore and Stein, 1948). To suitable aliquots of the algal 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.

Results

Phytochemical components of medicinal drugs;

Reducing sugars:

Reducing sugar is any sugar that is capable of acting as a reducing agent because it has a free aldehyde group. All monosaccharides are reducing sugars. Reducing sugars react with amino acids in the maillard reaction, a series of reactions that occurs while cooking food at high temperatures and that is important in determining the flavor of food. Also, the levels of reducing sugars in wine, juice, and sugar cane are indicative of the quality of these food products.

Amino acid;

Amino acids are organic compounds containing amine and carboxyl functional groups, along with a side chain specific to each amino acid. amino acid

based – nutritional supplement, if you are pregnant, breast feeding. If you have allergies to medicines, foods . It is taken by through a feeding tube. It must be mixed with water before take it. store unopened cans of amino acid –based nutritional supplement at room temperature, between 68 and 77 degrees F. once mixed, store amino acid –based nutritional supplement in the refrigerator between 35 and 40 degrees F and use within 24 hours .Do not freeze .Store away from heat , moisture, and light. use opened can contents within 1 month .

Flavonoids:

Flavonoids are a class of plant and fungus secondary metabolites. Flavonoids are water soluble polyphenolic molecules containing 15 carbon atoms .it is some activities attributed to flavonoids include; anti allergy ,anti cancer , anti viral. the flavonoids quercetin is know for its ability to relieve hay fever, sinusitis, asthma . flavonoid intake is inversely related to heart disease ,with these molecules inhibiting the oxidation of low density lipoproteins and therefore reducing the risk of atherosclerosis developing.

Qualitative result

| Test | Result |
|----------------|---------|
| Carbohydrate | Absent |
| Reducing sugar | Present |
| Protein | Absent |
| Aminoacid | Present |
| Tannin | Absent |
| Steroids | Absent |
| Saponins | Absent |
| Glycosides | Absent |
| Flavonoids | Present |
| Phenols | Absent |

Quantitative result

| Test | Result |
|----------------------------------|------------------------|
| Reducing sugar (mg/ ml) | 142 mg/ ml |
| Amino acid ($\mu\text{g/ ml}$) | 32.5 $\mu\text{g/ ml}$ |
| Flavanoid ($\mu\text{g/ ml}$) | 40 $\mu\text{g/ ml}$ |

Discussion

Phytochemical Analysis;

The homemade paruthividhai chooranam is a brown colored with pleasant aroma substance. The chooranam subjected to phytochemical analysis,

shows the presence of following. reducing sugar -142 mg, amino acids -32.5 $\mu\text{g/ ml}$, flavonoid -40 $\mu\text{g/ ml}$.

The screening concludes the benefits of Paruthividhai chooranam in classical siddha medicine for various gastro intestinal problems.

Conclusion

The obtained results of phytochemical analysis is sufficient to authenticate and standardize Paruthividhai chooranam. The results obtained could be utilized as reference for developing standard formulation of great efficacy.

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