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Research Article

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Phytochemical analysis of Mookirattai Choornam

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Abstract

Mookirattai Choornam is a polyherbal formulation in siddha system of medicine. This formulation is reference from siddha vaithiya thirattu and indicated for abdominal pain, constipation, skin diseases, vallai. The purpose of this paper is analyse the pytochemical constituents in Mookiratai choornam.

Keywords: Mookiratai, polyherbal, phytochemical, Siddha, Choornam

Introduction

Siddha system of medicine is ancient unique system of medicine. It classified 4448 diseases and gives information to treat the diseases .siddha system prepares medicine from three natural raw sources of thathu, thavara ,and sangamam.The mookiratai choornam is a plant source drug and used to treat Various diseases .The phytochemical study is focused on Active Principles in mookiratai Choornam which gives support to cure the above indications. This Formulation is obtained from Siddha vaithiya thirattu Library of government siddha medical college palayamkottai.

Materials and Methods

Table1: Incredients of mookiratai choornam

S.No	Common name	English name	Botanical name	Part used
1.	Mookirattai	Hog weed	Boerhavia diffusa	Root
2.	Ven kuntri	Indian liquorice	Abrus pulchelus	Root
3.	Kondrai	Indian ladurnam	Cassia fistula	Root
4.	Kadukkai	Ink nut	Terminalia chebula	Unriped fruit

Collection of drug:

Raw drugs are collected from country medical shop, Nagercoil.

Authentication:

Authenticated by Associate professor Dr. A. Kingsly, HOD of department of PG Gunapadam, Government Siddha Medical College, Palayamkottai.

Preparation of drug:

The ingredients in table 1 are purified and powdered separately .All the above raw drugs except kadukkai taken as a same quantity and kadukkai is three times higher quantity then the others . All the drugs are mixed well together.

Indication:

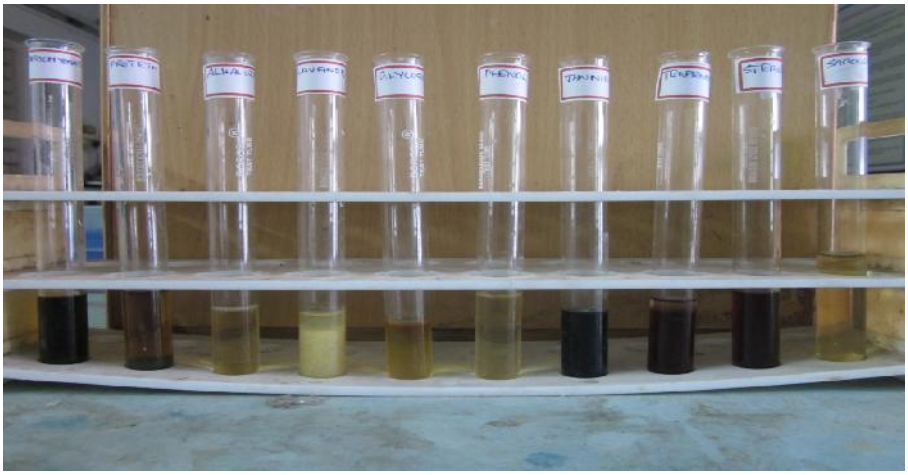
Abdominal pain, constipation, Skin diseases, Thimir Vatham, and Vallai

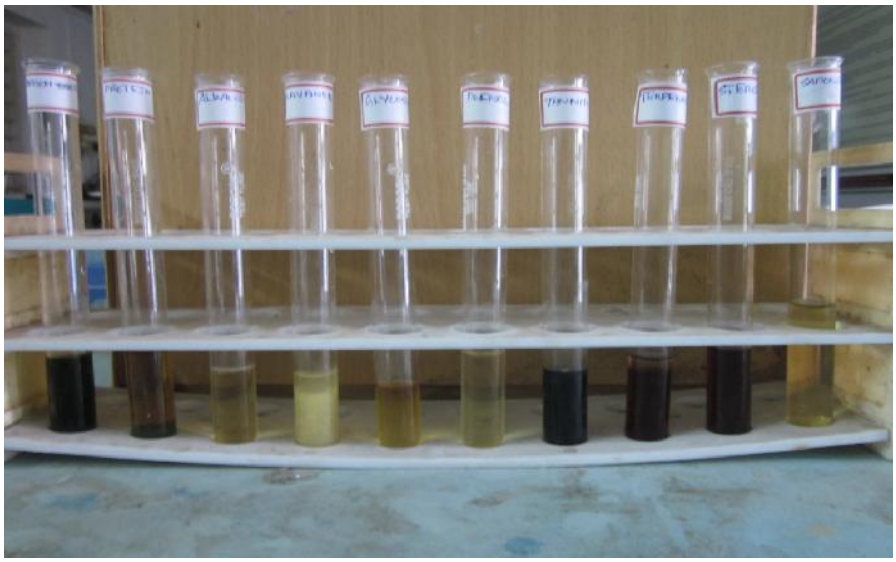
Dosage:

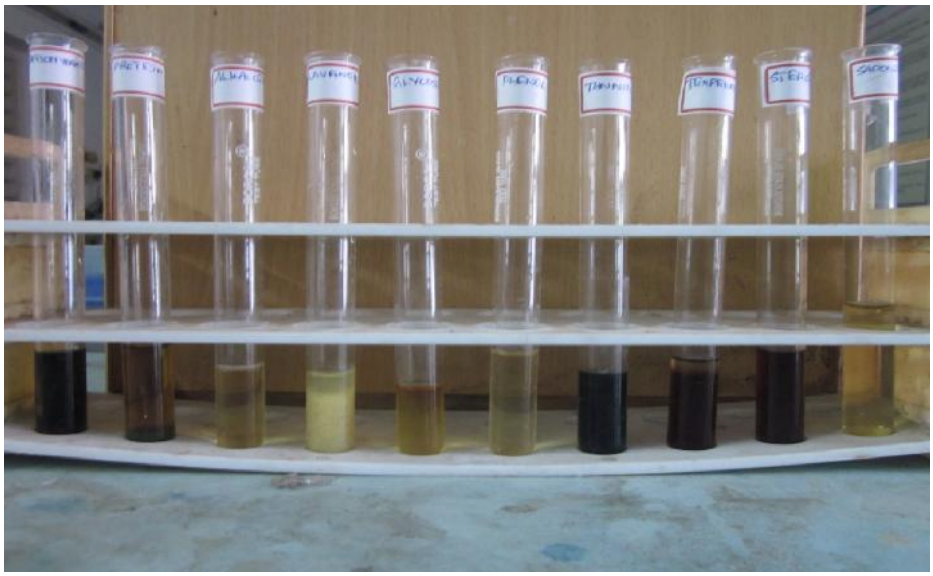
Sufficient amount

Phytochemical analysis:

Qualitative analysis:







Procedure

Test for Carbohydrates - Benedict's test (Brain & Turner, 1975)

To 0.5 ml of test drug about 0.5 ml of Benedict's reagent is added. The mixture is heated on a boiling water bath for 2 minutes. A characteristic coloured precipitate indicates the presence of sugar.

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.

Alkaloids (Ansari, 2006)

The extract was evaporated in a test tube. To the residue dilute HCL was added, shaken well and filtered.

Mayer's Test: To the 2-3 ml of filtrate Mayer's reagent was added. Formation of yellow precipitate showed the presence of alkaloids.

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.

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

Protein (Ansari, 2006)

Biuret test

With 3 ml of test solution, few drops of 4% NaOH and 1% CuSO4 solution were added. The tubes were observed for violet or pink colour formation.

Phenol (Mukherjee, 2002)

Ferric chloride test

The extract was diluted to 5 ml with distilled water. To that a few drop of neutral 5% ferric chloride solution was added. A dark green color indicates the presences of phenolic compounds.

Test for Glycosides (Horbone, 1984)

0.5 mg of extract was dissolved in 1 ml of water and then aqueous NaOH solution was added. Formation of yellow color indicates the presence of glycosides.

Test for Triterepnoids (Horbone, 1984)

To the test solution 2ml chloroform was added with few drops of conc. Sulphuric acid (3ml) at the side of the test tube. An interface with a reddish brown coloration is formed if terpenoids constituent is present.

Procedure

Quantitative Estimation of carbohydrate

The total sugar content was estimated by Anthrone method (Roe, 1955). A known amount of the sample was taken, ground well with 80% ethanol and was centrifuged at 4000 rpm. From the supernatant, 0.5 ml was taken and 5 ml of anthrone reagent was added. The tubes were kept in a boiling water bath for 15 min. After that, they were kept in a dark room for another 15 minutes. The colour intensity developed was read in a spectrophotometer at 650 nm.

Quantitative Estimation of flavanoids: (Evans, 1996)

Total flavonoid 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 min 0.3 ml of 5 % Sodium nitrite, 0.3 ml of 10% Aluminium chloride was added. After 6 min 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 against a blank spectrophotometrically. Results were expressed as catechin equivalents (mg catechin/g dried extract).

Quantitative Estimation of Saponins: (Evans, 1996)

Methanolic and water extract was dissolved in 80% methanol, 2ml of Vanilin in ethanol was added, mixed well and the 2ml of 72% sulphuric acid solution was added, mixed well and heated on a water bath at 60^0c for 10min, absorbance was measured at 544nm against reagent blank. Diosgeninis used as a standard material and compared the assay with Diosgenin equivalents.

Total terpenoid determination

Total terpenoid content was determined by the method of Ghorai et al (2012). To 1 mL of the plant extract, 3 mL of chloroform was added. The sample mixture was thoroughly vortexed and left for 3 min and then 200 µl of concentrated sulfuric acid (H2SO4) was added. Then it was incubated at room temperature for 1.5h-2h in dark condition and during incubation a reddish brown precipitate was formed. Then carefully and gently, all supernatant of reaction mixture was decanted without disturbing the precipitation. 3 mL of 95% (v/v) methanol was added and www.ijppr.humanjournals.com Citation: Natesan Geetha et al. Ijppr.Human, 2015; Vol. 2 (2): 98-106. 102 vortexed thoroughly until all the precipitation dissolve in methanol completely. The absorbance was read at 538 nm using UV/visible spectrophotometer. The total terpenoid content was calculated by calibration curve of Linalool and the results were expressed as Linalool equivalent (mg/g).

Quantitative Estimation of Tannins: (Robert, E.B. 1971. Agro.J.63, p.511)

1ml of the extract was mixed with 5ml of vanillin hydrochloride reagent (mix equal volumes of 8% HCL in methanol and 4% vanillin in methanol). The mixed was allowed to stand for 20mins and measure the absorbance at 500nm. The standard graph was plotted for working standard catechin solution (0 to 250µg/µl).

Quantitative Estimation of Glycoside: (Solich et al., 1992)

10ml of the extract and 10ml of Baljet's reagent are taken and allowed to stand for one hour. Then dilute the solution with 20ml distilled water and mix. Read the intensity of the colour obtained against blank at 495nm using a spectrophotometer. The difference between test and control is taken for calculation. Standard graph can be prepared using standard digitoxin.

Results

Quantitative result

Test	Result mg/ g
Carbohydrate	43.1 ± 0.3
Flavanoid	38 ± 0.23
Saponin	50 ± 0.9
Glycoside	33.1 ± 0.3
Terpenoid	19 ± 0.4
Tannin	47 ± 0.43

Quantitative Result

Test Name	Result
Carbohydrate	Present
Protein	Absent
Alkaloid	Absent
Flavanoid	Present
Glycoside	Present
Steroid	Absent
Saponin	Present
Phenol	Absent
Tannin	Present
Terpenoid	Present

Discussion

The sample of Mookirattai choornam phytochemical analysis shows existence of carbohydrate, flavanoids, glycosides, saponin, tannin and terpenoid also the qualitative analysis exhibits absence of protein,alkaloid, steroid and phenol. This result gives the information to indicate the mookirattai choornam.

Conclusion

The siddha system of medicine has a higher efficacy to cure various diseases. The scientific evaluations are necessary to prove the potency of siddha drugs to the world. These pytochemical analysis is useful and creates the foundation for further researches about mookirattai choornam.

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