

Research Article

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Qualitative phytochemical analysis of a classical siddha medicine Pachai Karpoora Mathirai

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Keywords

Siddha system,
Pachai Karpoora
Mathirai,
Phytochemical
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Abstract

In siddha system of medicine, enormous number of preparations were used for treating acute infections and fever. Pachai Karpoora Mathirai, a sasthriya preparation used for treating various types of fever. The purpose of the study was to do preliminary phytochemical screening. This is because, the scientific world turns towards the siddha system for its great source of medicine.

Introduction

Siddha medicine is the foremost of all other medical systems in the world. The uniqueness of this system is to treat diseases physically and mentally.

Apart from herbs, this system has unique treasure of drug knowledge like preparations from metals and minerals such as copper, silver, gold, lead and preparations from animal products.

The Pachai Karpoora Mathirai, which texted in "Siddha Vaitya Thirattu" for treating veppusuram and thabasuram. Prior studies had shown that this drug has potent antimicrobial activity against *Klebsiella pneumoniae*, *Bacillus subtilis* and *Staphylococcus aureus*.

This study primarily focus on a preliminary phytochemical screening of Pachai Karpoora Mathirai.

Aim and objective

The aim of this study to do qualitative phytochemical screening.

Materials and Methods

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.

Brain KR, Turner TD. The Practical Evaluation of Phytopharmaceuticals. Bristol:Wright- Sciencetechnica; 1975; 36-45

Reducing sugar (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, Vallabh Prakashan, New Delhi. 4 - 29.

Glycosides (Ansari, 2006):

Keller-Killiani Test: To 2 ml of the extract, glacial acetic acid, one drop 5% FeCl₃ and conc. H₂SO₄ 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. H₂SO₄ 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.

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.

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

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, Vallabh Prakashan, 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.

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.

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

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.

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

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.

Horbone, J.B., In: Phytochemical methods, 2nd edition. Chapman and Hall, New York,1984.

Test for Triterpenoids (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.

Horbone, J.B., In: Phytochemical methods, 2nd edition. Chapman and Hall, New York,1984.

Test of Coumarins (Brain & Turner, 1975):

1 ml of extract, 1 ml of 10% sodium hydroxide was added. The presence of coumarins is indicated by the formation of yellow color. Test for Quinones The test samples were treated separately with Alc. KOH solution. Appearance of colors ranging from red to blue indicates the presence of Quinones.

Brain KR, Turner TD. The Practical Evaluation of Phytopharmaceuticals. Bristol:Wright- Scientechica; 1975; 36-45

Test for Anthocyanin (Brain & Turner, 1975):

About 0.2 ml of the extract was weighed in separate test tube, 1ml of 2N Sodium hydroxide was added, and heated for 5 minutes at $100 \pm 2^{\circ}\text{C}$. Observed for the formation of bluish green color which indicates the presence of anthocyanin.

Brain KR, Turner TD. The Practical Evaluation of Phytopharmaceuticals. Bristol:Wright- Scientechica; 1975; 36-45

Test for Betacyanin (Brain & Turner, 1975):

To 2 ml of the test sample, 1 ml of 2N sodium hydroxide was added and heated for 5 min at 100°C . Formation of yellow colour indicates the presence of betacyanin.

Brain KR, Turner TD. The Practical Evaluation of Phytopharmaceuticals. Bristol:Wright- Scientechica; 1975; 36-45

Results

Table 1 Qualitative phytochemical analysis of Pachaikarpoora Mathirai

| Test | Result |
|----------------|---------------|
| Reducing Sugar | Absent |
| Carbohydrate | Absent |
| Protein | Present |
| Alkaloid | Present |
| Flavanoid | Absent |
| Glycoside | Present |
| Steroid | Absent |
| Saponin | Absent |
| Triterpenoid | Present |
| Phenol | Absent |
| Tannin | Absent |
| Coumarins | Absent |
| Quinones | Absent |
| Anthocyanin | Absent |
| Betacyanin | Absent |

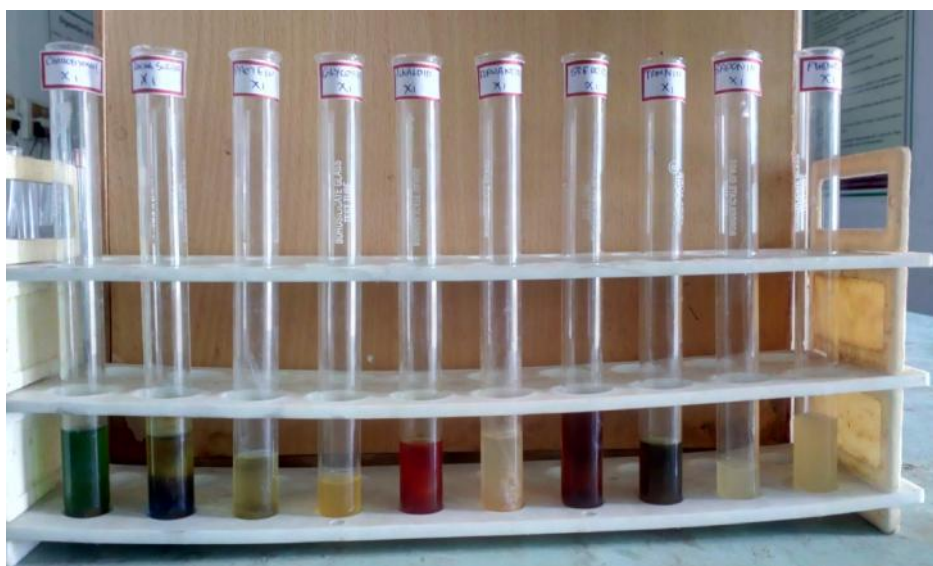


Figure 1 Qualitative phytochemical analysis of Pachaikarpoora Mathirai

Conclusion

The phytochemical analysis of Pachai Karpooramathirai has showed that the drug had phytochemicals like alkaloids, proteins, glycoside and triterpenoid.

References

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