



ORIGINAL RESEARCH PAPER

Siddha

BIOCHEMICAL ANALYSIS OF MONOHERBAL DRUG KOTTAI KARANTHAI CHOORANAM

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ABSTRACT

Siddha system of medicine is a traditional system of healing that originated in south India and is regarded as one of the oldest system of medicine practiced in India. Siddhars contributed not only to a system of medicine but also to the knowledge of eternity, alchemy and yogic living. Skin disease is one of the most common human illnesses. Siddha has safe herbal and herbomineral treatment for skin diseases. The therapeutic quality of siddha medicines is due to the presence of the biologically active chemicals. This paper describes the qualitative analysis of kottai karantjai chooranam which act as an indicator for skin disease. The qualitative analysis of kottai karantjai chooranam indicates the presence of calcium, sulphate, chloride, ferrous iron, unsaturated compound and amino acids. The presence of these biochemicals reveals the therapeutic action in skin.

INTRODUCTION

Siddha system accounted for a total of 4448 diseases symptoms and its cure. The siddha system of medicine is largely therapeutic in nature. The drugs used mostly comprised of herbs and most of the medications are administered orally. Medicinal plants are naturally gifted with invaluable bioactive compounds which form the back bone of traditional medicines. Skin diseases are classified into 18 different types in siddha. The monoherbal formulation of kottai karantjai chooranam for skin diseases and its qualitative analysis of kottai karantjai chooranam is elucidating in this article.

MATERIALS & METHODS

Kottai karantjai chooranam drug

Ingredients

Table - 1

Sl. No.	Drug name	Botanical name	Parts used
1	Kottai karantjai	Sphaeranthus indicus	Whole plant

Collection, identification and authentication of the drug

The drug is collected from the fields and the drug is authenticated by the Medical Botanist of Government Siddha Medical College, Palayamkottai.

Purification of the drug

The ingredient of the herbal formulation was purified

Qualitative analysis

Table - 2

Sl. No.	Experiment	Observation	Inference
1	Test for calcium: 2ml of the above prepared extract is taken in a clean test tube and to this add 2ml of 4% Ammonium oxalate solution	White precipitate is formed	Indicates the presence of calcium
2	Test for sulphate: 2ml of the extract is added to 5% Barium chloride solution	A white precipitate is formed	Indicates the presence of sulphate
3	Test for chloride: The extract is treated with silver nitrate solution	White precipitate is formed	Indicates the presence of chloride
4	Test for carbonate: The extract is treated with concentrated Hydrochloric Acid	No brisk effervescence is formed	Absence of carbonate
5	Test for starch: The extract is added with weak iodine solution	Absence of blue color formation	Absence of starch

according to the proper procedure method described in the siddha classical literature.

Preparation of the drug

The drug is purified and it is made into powdered form. Then the same is filtered using pure white cloth. Store the filtered drug in a dry airtight container and label it as kottai karantjai chooranam.

Biochemical analysis

Screening the kottai karantjai chooranam drug will lead to the identification of the biochemical property.

Chemicals and drug

All the chemicals used in this study are analytical grade obtained from Department of Biochemistry, Government Siddha Medical College, Palayamkottai, Tirunelveli.

METHODOLOGY

5 grams of the drug is accurately weighed and placed in a 250ml clean beaker. Dissolve the drug using 50ml of distilled water and bring it to boil for about 10 minutes. Allow it to cool and filter out into a 100ml volumetric flask. Bring the solution to 100ml by adding distilled water. The final solution is taken for analysis.

6	Test for ferric iron: The extract is acidified with glacial acetic acid and potassium ferro cyanide	No blue color is formed	Absence of ferric iron
7	Test for ferrous iron: The extract is treated with concentrated nitric acid and ammonium thiocyanate solution	Blood red color is formed	Indicates the presence of ferrous iron
8	Test for phosphate: The extract is treated with molybdate and concentrated nitric acid	No yellow precipitate is formed	Absence of phosphate
9	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 is added to the extract	Decolorization occurs	Presence of unsaturated compound
12	Test for reducing sugar: 5ml of benedict's qualitative solution is taken in a test tube and allowed to boil for 2 minutes and add 8 to 10 drops of the extract and boil it again for 2 minutes	No color change	Absence of reducing sugar
13	Test for amino acid: One or two drops of the extract is placed on a filter paper allow it to dry. After drying 1% Ninhydrin is sprayed over the same and again dry	Violet color is formed	Presence of amino acid
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 the trial drug kottai karanthai chooranam was tabulated in table 2. The trial drug contains

1. Calcium
2. Sulphate
3. Chloride
4. Ferrous iron
5. Unsaturated compound
6. Amino acid

The mode of action of the trial drug kottai karanthai chooranam which brings about the therapeutic action in bone mineralization, hemoglobin, electrolyte balance, protein formation, generate new skin cells in the body, may be due to the presence of the above notified biochemical compounds.

CONCLUSION

Kottai karanthai chooranam is a siddha drug used in the treatment of skin disease. This monoherbal formulation is taken from the classical siddha literature. The drug is screened for its biochemical properties. Further pharmacological analysis is needed to evaluate the potency and the drug has its own potential to undergo further research.

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REFERENCES

1. Dr. D. R. Lohar, Pharmacopoeial laboratory for Indian medicine, department of Ayurveda, Yoga and Naturopathy, siddha, Unani and homeopathy, ministry of health and family welfare, 2011
2. Pharmacy and pharmaceutics of siddha medicine (2016), national institute of siddha
3. Anonymous, sarakku suthi muraigal (2008), 1st edition, siddha maruthuva nool veliyitu pirivu, indian medicine and homeopathy
4. Anonymous, Textbook of sirappu maruthuvam, 1st edition, department of indian medicine and homeopathy, arumbakkam, Chennai
5. Murugesu muthaliya K. S., textbook of material medica [Gunapadam], mooligai vaguppu, department of indian medicine and homeopathy
6. Habif, Campbell, Dinulos, Chapman, & Zug, skin disease diagnosis and treatment, 2011, Elsevier, ISBN: 9780323081191
7. A. L. Kennedy, What are the skin benefits of calcium? Livestrong.com, <https://www.livestrong.com/article/187950-what-are-the-skin-benefits-of-calcium/>

8. Wright, J. A., Richards, T., & Srni, S. K. (2014). The role of iron in the skin and cutaneous wound healing. *Frontiers in pharmacology*, 5, 156. doi:10.3389/fphar.2014.00156
9. K. M. Nadkarni's, Indian materia medica, Volume II, 1976, Edition III, Popular Prakashan, ISBN: 9788171541430