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Qualitative Phytochemical analysis of Siddha herbal preparation - Karisalai Mathirai

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Abstract

In siddha system of medicine drug consists of poly herbal formulations, its containing different plant parts and used for the treatment of various diseases. Phytochemicals, chemical compounds that absorb naturally in plants are responsible for colour and biological properties. The term is generally used to refer to those chemicals that may have biological significance but are not established s essential nutrients qualitative phyto chemical analysis of Karisalai mathirai (KM).The medicinal value of Karisalaimathirai lies in some chemical active substance that produce a definite phytochemical action of the human body. The qualitative chemical screening of alcohol extract of KC is revealed the presence of various secondary metabolites such as Flavanoids, Steroids, Glyosides, Saponins. The result indicated promising antioxidant activity of crude extract and needs further exploration for their effective use in both modern and Siddha system of medicines.

Keywords: Karisalai mathirai, Siddha herb, Phytochemical analysis, Antioxidant

Introduction

In Indian system of medicine have many more herbs are used in antioxidant medicinal formulations which are called as Kaayakalpa medicines. These formulations have been used to treat the illness and help to regenerate the degenerative conditions (Anti oxidative) and also help to prevent the aging and reduce the risk of NCD. Karisalai mathirai is a poly herbal siddha preparation, it was mentioned in siddha literatures (Table no 1).The extracts of medicinal plants and natural products have become a great source of antioxidant and antiageing properties. Naturalanti oxidants are considered to be safe and bioactive.

The anti oxidants from natural sources are the only alternative to synthetic antioxidants in counteracting the free radicals associated diseases. The antioxidant activity of phenolic compounds are mainly due to redox properties, which allow them to act as reducing agents, hydrogen donors, and singlet oxygen quenchers. Recently many epidemiological studies have suggested that the consumption of natural antioxidants such as polyphenol rich food, fresh fruits, vegetables has been partly ascribed to the presence of several components, such as vitamins, flavonoids and other phenolic compounds.

Materials and Methods

The drug Karisalai Mathirai is mentioned in the siddha text book Anubava Vaithiya Deva Ragasiyam-second edition: 1991 Author: J. Seetharamprasad, page no: 53.

Table 1. Ingredients of Karisalai Mathirai:

Sl. No	Tamil name	Botanical name	Part used	Phytochemical constituents	Action
1.	Karisalai	*Eclipta prostrata* (Asteraceae)	Leaf	Ecliptine, Vitamin A	Haemotonic, Hepatotonic, Antioxidant.
2.	Milagu	*Piper nigrum* (Pieraceae)	Dried fruit	Piperine, Tetradecadienoic acid, Sylvamide, cepharadione A, Methylenedioxy	Hepato protective, Anti-depressant activity, Immuno modulatory.

Purification of raw drugs:

Raw drugs are purified as mentioned as below:

1. Karisalai, 2. Milagu-cleaned and dried in sunlight.

Method of preparation:

Preparation of Karisalai Mathirai:

The above drugs are taken in required quantity, powered separately and sieved by sieving cloth. Then all powered drugs are mixed and taken as a compound preparation then the powder is grinded with water to make karkam. Finally the paste is prepared in to tablets of Sundai size (0.798mg) and dried and stored in air tight container.

Drug collection and authentication:

All ingredients of the drug were bought from Nagarcoil and authenticated at department of Botany, Govt Siddha Medical College, Palayamkottai.

Qualitative phytochemical analysis of Karisalai Mathirai:

Preliminary test in Karisalaimathirai is carried out for the presence of Alkaloids, Glycosides, Flavonoids, Phenols, Sapanoids, Steroids, Tannins, and Terpenoids etc.

The methods of adopted for the estimation are as follows:

Test for Alkaloids: Dragendorff's test (D.Waldi, 1965)

To 0.5 ml of alcoholic extract of Karisalai mathirai 2ml of HCl is added. To this acidic medium 1ml of reagent was added. An orange red precipitate produced.

Test for flavonoids: Shinoda's test (Harborne, 1984)

Karisalai mathirai is treated with alcohol, to that a piece of Magnesium is added followed by an addition of conc. HCl drop wise and heated. Appearance of Magenda colour occurred.

Test for Saponins: Frothing Test (Kokate, 1999)

Karisalai Mathirai was diluted separately with 20ml of distilled water and it was agitated on a graduated cylinder for 15min.Absence of the foam formation.

Test for Phenol: Ferric chloride test (Mace, 1963)

To 2ml of alcoholic extract of Karisalai mathirai, 2ml of distilled water followed by drops of 10% aqueous solution of $FeCl_3$ solution were added. Formation of blue or green colour.

Test for Tannins: Ferric chloride test

To 2ml of aqueous extract, few drops of 5%ferric chloride solution were added. A bluish black colour which disappears in addition of few ml of sulfuric acid, there is no formation of yellowish brown precipitate.

Test for steroids: Salkowski test (Finar, 1986)

Small quantities of siddha preparation Karisalai mathirai were dissolved in chloroform separately. This chloroform solution was added with few drops of concentrated sulfuric acid. The appearance of bluish colour occurred.

Test for Glycosides (Evans, 1997)

A small amount of alcoholic extract of Karisalai mathirai was dissolved in 1ml of water and the aqueous NaOH solution was added. Yellow colour found.

Test for Terpenoids:

To 2ml of chloroform extract, 1ml of conc.H_2SO_4 was added carefully along the sides of the test tube. Red colour was produced in chloroform layer.

Extraction method:

Karisalai Mathirai was extracted in soxhlet extraction apparatus using alcohol solvents (Vogel, 1988).The extract obtained with solvent were used for the qualitative chemical screening of the various classes of active chemical constituents, using standard prescribed method (Harborne 1984,Trease and Evanf 1987, DA Dhale and UP Mogle 2011).The positive result were expressed as present (+) and absent(-).

Results and Discussion

Qualitative phytochemical analysis of Karisalai Mathirai:

Phytochemical screening provides basic information about medicinal importance of a plant extract. In this study, evaluation for qualitative analysis of the chemical constituents of Karisalai mathirai extracts showed the presence of various secondary metabolites. The qualitative phytochemical analysis revealed the presence of Flavanoids, Glycosides, Steroids, Saponins and Anthraquinones, Terpenoids and phenols, lignans were not detected in aqueous methanol extract (Table 2).

Table 2. Results of phytochemical screening

Sl. No	Test	Results
1.	Terpenoids	Absence of Terpenoids (-)
2.	Phenols	Absence of Phenols (-)
3.	Flavanoids	Presence of Flavanoids (+)
4.	Steroids	Presence of Steroids (+)
5.	Quinones	Absence of Quinones (-)
6.	Anthraquinones	Absence of Anthraquinones (-)
7.	Glycosides	Presence of Glycosides (+)
8.	Acids	Absence of Acids (-)
9.	Alkaloids	Absence of Alkaloids (-)
10.	Tannins	Absence of Tannins(-)
11.	Lignans	Absence of Lignans (-)
12.	Saponins	Presence of Saponins (+)
13.	Aminoacids	Absence of Amino acids (-)

Conclusion

The qualitative chemical analysis of siddha herbal formulation Karisalai mathirai (KC) are embedded in variety of secondary metabolites such as Flavanoids, Steroids, Glycosides, Saponins. Mode of action is based upon efficacy of various plantmolecules. Phytochemicals will find their way in to the arsenal of anti microbial drugs prescribed by physician due to easy acceptability and less toxicity without having the problem of any side effects and drug resistance. Phytochemical screening which could be developed for treatment of various infectious diseases.

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