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EVALUATION OF SIDDHA HERBO FORMULATION (VALIKANA KUDINEER) FOR ITS PHYSICO AND PHYTOCHEMICAL ANALYSIS

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ABSTRACT

The aim of the present study was evaluate physicochemical and phytochemical analysis of "VALIKANA KUDINEER". The physicochemical properties such as loss on drying, total ash value, specific gravity, viscosity at 50^{o} C, refractive index, weight per ml (gm/ml), iodine value, saponification value, total iron content (mg/ml), PH values were carried out. The phytochemical properties such as a tannins, Alkaloid, saponins, flavanoids, phenols, Diterpenes, Quinones, Triterpenes were also carried out. The present study provides the details physicochemical and phytochemical properties of "VALIKANA KUDINEER'' which is useful in "PHARYNGITIS".

KEYWORDS: Physicochemical, Phytochemical, Valikana kudineer.

INTRODUCTION

Siddha system is a well known traditional systems of medicines always played important role in meeting the global health care needs. The term **"Siddha"** means **"Achievements"** and "**Siddhars"** were "**saintly persons"** who achieved results in medicine. Eighteen siddhars were said to have contributed towards the development of this medical system.

Lord Shiva who unfolded the knowledge of siddha system of medicine to his concert Parvati who handed it down to Nandhi deva and from Himto the Siddhars. Siddhars adapted principles of Saiva Siddhantham.

Siddhars classified diseases in different categories which accounts for 4448 diseases in human body.

Agathiyar was considerd the foremost Siddhar with his later Lord Subramaniyar.

According to the ancient Siddha texts, the human body is made up of several elements .It is amicroscopic componant of the universe. The elements that form the human body are the Earth (Mann), Fire (thee), Water (neer), Air (vayu) and Space (akasam).

Additionally, There are three humors or the DOSHAS called,

- Vata
- Pitta
- Kapha

Siddha medicine believes that diseases occur when there is a disequilibrium or imbalance in these humors or if their individual hormony is disturbed.

The balance can be restored by correcting the underlying dosha by the application of the Siddha system of medicine.

The three doshas are considered the three pillars of health and support the structures and functions of the body. These tridoshas are involved in regulating all the function of the body and maintain the balance in physical, emotional and mental spheres.

As per Siddha aspect, paediatric diseases are carried from gene. It defines that the paediatric diseases occur at the time of fertilization to gestational period those paediatric diseases where classified in to **Agakkarana noigal** and **Pura karana noigal**.

Pharyngitis is being 1/3 of the primary system of the upper respiratory tract infection in children. Acute pharyngitis is the inflammation of the pharynx arise from a variety of irritants and infections. Upper respiratory tract infections (URTI) are extremely common in the children on anaverage of 6-8 times in a year. Pharyngitis is the primary symptom in 1/3 of URTI's caused by

Infective and non-infective Infections like viruses, bacteriae and fungi.

Clinical features of acute pharyngitis correlates with the symptoms of valikanam fever, cold, cough, loss of appetite, sore throat, urinary infection described in the Siddha text. In siddha Literature valikanam is one of the 24 types of "Kanam" that occurs in children. The medicine was chooses for treatment and management of the Valikanam was Valikana kudineer 15-30 ml internally, twice a day after food described in Pillaipini maruthuvam. Valikana kudineer considerably high antimicrobial activity against the tested pathogenic microorganisms as well as Anti inflammatory activity .This biological activity due to the presence of phytochemical parameters. To the best of our knowledge phytochemical and physicochemical analysis of "Valikana Kudineer"

MATERIALS AND METHODS

Drug Authentication and preparation

Valikana kudineer is a herbal formulation comprising of 4 type of herbs that is Vilva ilai (Agle marmoles), Vendhayam (foenum gracum), Narseeragam (cuminum cyminum), Eera vengayam (Allium cepa). The drugs were authenticated by Medicinal botany department in Government Siddha Medical College, Arumbakkam, Chennai. The purified raw drugs are made into coarse powder, then the coarse powder is taken in mod pot, 60ml of water is added and heated, till it is reduced into 30ml.

Phytochemical Analysis

Test for Alkaloids

The extract was treated with dilute hydrochloric acid and filtered. The filtrate is used in the following tests.

a) Mayer's reagent (Potassium Mercuric Iodine Solution)

0.5ml of the extract was treated with Mayer's reagent and the appearance of cream color indicates the presence of alkaloid

2. Test for Carbohydrates

a) Molisch's test

The extract was treated with 3ml of alpha-napthol in alcohol and concentrated sulphuric acid was added along the sides of the test tube carefully. Formation of violet color ring at the junction of two liquids indicates the presence of carbohydrates.

3. Test for Steroids

a) LibermannBurchard test

The extract was treated with small quantity of concentrated sulphuric acid, glacial acetic acid and acetic anhydride. The appearance of green color indicates the presence of steroids

4. Test for Proteins

a) Biuret's test

The extract was treated with copper sulphate and sodium hydroxide solution. The appearance of violet color indicates the presence of proteins.

5. Test for Tannin's

a) The extract was treated with 10% lead acetate solution. The appearance of white precipitate indicates the presence of tannins.

b) The extract was treated with aqueous bromine solution. The appearance of white precipitate indicates the presence of tannins.

6. Test for Phenols

a) The extract was treated with neutral ferric chloride solution. The appearance of violet indicates the presence of phenols.

7. Test for Flavonoid's

a) 5ml of extract solution was hydrolysed with 10%v/v sulphuric acid and cooled. Then, it is extracted with diethyl ether and divided into three portions in three separate test tubes. 1ml of diluted sodium carbonate, 1ml of 0.1N sodium hydroxide, and 1ml of strong ammonia solution were added to the first, second and third test tubesrespectively. In each test tube, development of yellow color demonstrated the presenceof flavonoids.

8. Test for Gums and Mucilage

The extract was treated with 25ml of absolute alcohol and then solution was filtered.

The filtrate was examined for its swelling properties.

9. Test for Glycosides

The extract was dissolved in the glacial acetic acid and few drops of ferric chloride solution was added, followed by the addition of concentrated sulphuric acid, formation of red ring at the junction of two liquids indicates the presence of glycosides.

10. Test for Saponins

1ml of the extract was diluted to 20ml with distilled water and shaken well in a test tube.

The formation of foam in the upper part of the test tube indicates the presence of saponins.

11. Test for Terpenes

The extract was treated with tin and thionyl chloride, appearance of pink color indicates the presence of terpenes.

12. Test for Sterols

The extract was treated with 5% potassium hydroxide solution; appearance of pink color indicates the presence of sterols.

Phytochemical screening from plant extracts of Valikana Kudineer (VK)

S. no.	Phyto-components	Result
1.	Alkaloid	+
2.	Carbohydrate	-
3.	Glycoside	-
4.	Saponins	+
5.	Phytosterols	-
6.	Phenols	+
7.	Flavonoides	+
8.	Diterpenes	+
9.	Quinones	+
10.	Triterpenes	+

Key: + = Positive, - Negative

Physico Chemical Analysis
Organoleptic Evaluation

Parameter	Observation
Color	Brownish
Smell	Characteristic Odour
Touch	Watery
Appearance	Water

Preparation of standard solution
0.2g of ferric ammonium sulphate was dissolved in distilled water containing 10ml of concentrated hydrochloric acid and the volume was made up to 250ml with distilled water 3. From this stock solution 1, 2, 3, 4 & 5ml was pipette out into 5 different 50ml volumetric flask and 5ml of 10% aq. hydroxyl ammonium chloride solution was added and the pH was adjusted between 3 to 5 using 2M sodium acetate buffer solution and 4ml of 1, 10-phenanthrolin was added and finally the volume was made up to 50ml with distilled water. After 15-20 min. the absorbance was noted at 515nm. The standard curve of concentration Vs absorbance was plotted.

Preparation of Test Solution
0.21g of test sample was taken with 50ml of 6N hydrochloric acid and boiled for 2-3 min. Then it was filtered and the volume was made up to 250ml with distilled water. From this 5ml of solution was pipette out into 50ml volumetric flask and the same procedure was followed as in the preparation of standard solution. After 15-20 min. the absorbance was noted at 515nm. From the absorbance the corresponding concentration was determined by extrapolation of calibration curve.

RESULT

The amount of iron present in the sample provided for analysis is 0.235 mg/ml

Physicochemical evaluation
Percentage Loss on Drying
10gm of test drug was accurately weighed in evaporating dish .The sample was dried at 105^{o}C for 5 hours and then weighed.

Percentage loss in drying = Loss of weight of sample/ Wt of the sample X 100

Determination of Total Ash
3 g of test drug was accurately weighed in silica dish and incinerated at the furnace a temperature 400 ºC until it turns white in color which indicates absence of carbon. Percentage of total ash will be calculated with reference to the weight of air-dried drug.

Total Ash = Weight of Ash/Wt of the Crude drug taken X 100

Determination of pH
Sample being oily in nature the direct litmus evaluation method was adopted to check the pH of the sample.

Determination of specific gravity
Fill the dry sp. gravity bottle with prepared samples in such a manner to prevent entrapment of air bubbles after removing the cap of side arm. Insert the stopper, immerse in water bath at 50^{O}C and hold for 30 min. Carefully wipe off any oil that has come out of the capillary opening. Remove the bottle from the bath, clean and dry it thoroughly. Remove the cap of the side and quickly weigh. Calculate the weight difference between the sample and reference standard

Determination of Iodine value
About 20 gm of oil was transferred into Iodine flask. To which 10 ml of chloroform was added and warmed slightly and cooled for 10 minutes. Followed by this about 25 ml of Wiji's solution was added in the same flask and shaken well. The flask was allowed to stand for 30 mins and refrigerated for anhour.T About 10 ml of KI solution was added to this and titrated against 0.1 N Sodium thiosulphate solutions until the appearance of yellow colour. 1 ml of starch indicator was added and again titrated against the sodium thiosulphate solution from the burette. Disappearance of blue colour indicates end point. Repeat the above procedure without taking sample and note the corresponding reading for blank titration.

Determination of saponification value
About 2 gm of test sample was transferred into the round bottomed flask. To this about 20 ml of 0.5 N alcoholic KOH solutions was added to the round bottomed flask. Repeatthe same procedure with out taking the sample for blank titration. Reflux both sample and blank round bottomed flasks for 1 hour. After reflux, allow both the round bottomed flasks to cool. Titrate the samples using 0.5 N HCl with phenolphthalein indicator. The disappearance of pink indicates the end point.

S. no.	Parameter	Result
1	Specific gravity	1.032g/cm^3
2	Viscosity at 50° C	0.5833 mPa.s (millipascal-second)
3	Refractive index	2.34
4	Weight per ml (gm/ml)	1.41±0.33
5	Iodine value	-
6	Saponification value (mg of KOH to saponify 1gm of fat)	-
7	Total iron content (mg/ml)	-
8	Loss on drying at 105° c	09.23 % by mass
9	Total ash	06.04%
10	PH	4.42

Final Test report

Statistical Analysis

Data was expressed as mean ± standard error of mean. Significance was evaluated by one-way ANOVA followed by dunnet's test. P value less than 0.05

Result and Discussion

Physicochemical parameters

The results of physico chemical analysis of valikana kudineer shown in Table. The Total amount of ash was 06.04%, specific gravity 1.032g/cm^3, viscosity at 50^0 C 0.5833, refractive index 2.34, PH 4.42, loss on drying at 105^{o}C 09.23% by mass, weight per ml(gm/ml) 1.41±0.33.

Phytochemical analysis

The phytochemical quantitative compositions of valikana kudineer content tannins, Alkaloid, saponins, flavanoids, phenols, Diterpenes, Quinones, Triterpenes.

CONCLUSIONS

The resuts obtained from physicochemical and phytochemical evaluation of valikana kudineer can be used for the standardization.

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