



Phyto-chemical standardization of *Ganthaka Parpam*

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ABSTRACT

Ganthaka parpam's therapeutic activities to be utilized for the treatment of cancer and inflammation. As per the siddha literature diseases are caused due to change in derangement of three vital humours, the vital humour kabha is deranged and accompanied with ushna causes yoni putru. With reference to Siddha text Agasthiyar Vaithiya Vallathy 600, Pg.No.218&219 Authored by Dr.K.Velusamy, MD(S), *Yoni putru* treats with internal medicine *Ganthaka parpam*. Though it has not been evaluated by either pre-clinical or clinical studies. This study was undertaken to evaluate its phytochemical analysis and evaluate its pharmacological action used for treatment of *Yoni putru*. *Ganthaka parpam* qualitatively analyzed for the presence of different phytoconstituents carbohydrates, proteins, flavonoids, glycosides, steroids, alkaloids, tannin and phenolic compounds. The phytochemical analysis reveals the presence of alkaloid, tannins, carboxylates and glycosides, Alkaloids are having stimulant activities which controls the fatigue and lethargy of the cancer patients. Tannins having astringent, haemostatic, anti-septic and toxic properties, which control symptoms of cervical cancer.

Keywords:

Ganthaka parpam, *Yoni putru*, Phytochemicals

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CODEN : IJRPHR

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To access this article online

Website : <http://www.ijrphr.com/>

DOI : 10.124/ijrphr/07.0101.582

Quick response code



INTRODUCTION

The biologically active compounds present in plants are called phytochemicals. These phytochemicals are derived from various parts of plants such as leaves, flowers, seeds, barks, roots and pulps. These phytochemicals are used as sources of direct medicinal agents. They serve as a raw material base for elaboration of more complex semi-synthetic chemical compounds (Shahira Banu and Cathrine, 2015).

Our current day problems such as cancer and HIV/AIDS seen identical to their descriptions of certain diseases for which they have also prescribed healing methods and treatments. The present research aims to analyze the medicinal utilization of *Ganthaka parpam* and its medicinal activities like anti-cancerous, anti-oxidant and anti-inflammatory. Siddha traditional system of medicine is widely being practical in the tamilnadu and the concept pertaining to drug ingredients are from plant (Mooligai), Mineral(Thathu), Metals and Animal(Jeevam) origin. Cancer (Yoni putru) is one of the leading causes of mortality world wide and the burden is increasing day to day. As per the siddha literature diseases are caused due to change in derangement of three vital humours, the vital humour kabha is deranged and accompanied with ushna causes yoni putru. The bitter taste normalized ushnam and kapham.

The test drug *Ganthaga Parpam* is selected from the text Agasthiyar Vaithiya Vallathy 600,Pg.No.218&219 Authored by Dr.K.Velusamy,MD(S). The review literature reveals that the ganthagam and Odukkam have anti-tumour, anti-oxidant and anti-inflammatory activities. The objective of the present study is to analyse the phytochemical analysis of *Ganthaka parpam* for the treatment of cancer and inflammation. The test drug was prepared properly by given procedure. All the ingredients were identified and authenticated by expert of department of gunapadam. The preparation of trial drug was standardized primarily by physicochemical analysis of the drug shows it is grey in colour with bitter astringent taste and odour.

METHODOLOGY

Phytochemical Analysis of the siddha preparation *Ganthaka parpam*

The siddha preparation *Ganthaka parpam* was prepared and used for phytochemical analysis. Preliminary test, on the siddha preparation *Ganthaka parpam* was carried out for the presence of alkaloids, carbohydrates, glycosides, phytosterols, saponins, tannins, phenolic compounds, proteins and free amino acids, flavanoids, lignin, fixed oils and fats. The methods adopted for the estimation are as follows:

1. Test for Alkaloids (Evans, 1997)

A small segment of the siddha preparation *Ganthaka parpam* was mixed separately with a few drops of dilute hydrochloric acid and filtered. The filtrates were tested carefully with various alkaloidal reagents as follows:

a) Mayer's test (Evans, 1997):

To a few ml of filtrate, a drop of Mayer's reagent is added by the side of the test tube. A white or creamy precipitate indicates that the test is positive.

b) Hager's test (Wagner et al., 1996): To a few ml of filtrate, one to 2ml of Hager's reagent is added. A prominent yellow precipitate indicates the test as positive.

c) Dragendorff's test (Waldi, 1965): To a few ml of filtrate, one to 2ml of Dragendorff's reagent is added. A prominent yellow precipitate indicates the test as positive.

2. Test for Carbohydrates (Ramakrishnan et al., 1994)

A small quantity of siddha preparation *Ganthaka parpam* was dissolved separately in 5ml of distilled water and filtered. The filtrate was subjected to Molisch's test to detect the presence of carbohydrates. Filtrate was treated with 2-3 drops of 1% alcoholic alpha naphthol solution and 2ml of concentrated sulphuric acid was added along the sides of the test tube. Appearance of brown ring at the junction of 2 layers shows the presence of carbohydrates.

3. Test for Glycosides

The siddha preparation *Ganthaka parpam* was hydrolyzed with hydrochloric acid for few h on a water bath and the hydrolysate was subjected to

Legal's and Borntrager's test to detect the presence of different glycosides.

(a) Legal's Test:

To the hydrolysate, one ml of pyridine and few drops of sodium nitro prusside solution were added and then it was made alkaline with sodium hydroxide solution. Appearance of pink to red color shows the presence of glycosides and aglycones.

(b) Borntrager's Test:

Hydrolysate was treated with chloroform and the chloroform layer was separated. To this equal quantity of dilute ammonia solution was added. Ammoniacal layer acquires pink color, shows the presence of glycosides (Evans, 1997).

4. Test for Phytosterols (Finar, 1986)

(a) Liebermann Burchard Test:

Small amount of the siddha preparation *Ganthaka parpam* was dissolved with 3ml of acetic anhydride, a few drops of glacial acetic acid and followed by the addition of few drops of concentrated sulphuric acid. Appearance of bluish green color shows the presence of phytosterols.

(b) Salkowski Test:

Small quantities of the siddha preparation *Ganthaka parpam* were dissolved in chloroform separately. This chloroform solution was added with few drops of concentrated sulphuric acid. The appearance of bluish green color shows the presence of phytosterols.

5. Test for Saponins (Kokate, 1999)

Frothing Test: The siddha preparation *Ganthaka parpam* was diluted separately with 20ml of distilled water and it was agitated on a graduated cylinder for 15min. Absence of the foam formation shows the devoid of saponins.

6. Test for Phenolic Compounds and Tannins (Mace, 1963)

Small quantities of siddha preparation *Ganthaka parpam* was dissolved separately in water and tested for the presence of phenolic compound and tannins. In the process of testing and treating, the following observations were noted:

a) Dilute ferric chloride solution (5%) gives a dark green color. 38

b) 10% aqueous potassium dichromate solution gives yellowish brown precipitate.

c) 10% lead acetate solution gives a white precipitate.

7. Test for Proteins and Free Amino Acids (Fisher, 1968; Ruthmann, 1970)

Small quantities of various siddha preparation *Ganthaka parpam* was dissolved in few ml of water and the following reaction were carried out

(a) Millon's Test :

To 2ml of filtrate, few drops of Millon's reagent were added. A white precipitate indicates the presence of proteins (Rasch and Swift, 1960).

(b) Ninhydrin Test:

To 2ml of filtrate 2 drops of ninhydrin solution was added. A characteristic purple color indicates the presence of amino acids (Yasma and Ichikawa, 1953).

(c) Biuret Test:

An aliquot of 2ml of filtrate was treated with a drop of 2% copper sulphate solution. To this, 1ml of ethanol (95%) was added, followed by excess of potassium hydroxide pellets, Pink color in the ethanol layer indicates the presence of protein (Gahan, 1984).

8. Test for Flavanoids

(a) Shinoda's Test:

Small quantity of siddha preparation *Ganthaka parpam* was treated with alcohol to that a piece of magnesium was added followed by an addition of concentrated hydrochloric acid drop wise and heated. Appearance of magenta color shows the presence of flavanoids (Harborne, 1984).

(b) Florescence Test:

Small quantity of *Ganthaka parpam* was dissolved separately in alcohol and a drop of that extract was placed on Whatman filter paper and observed under UV light. Florescence indicates the presence of flavanoids.

9. Tests for Lignin

Small quantities of *Ganthaka parpam* was dissolved separately in few ml of alcoholic solution of hydrochloric acid and phloroglucinol gives red color, which shows lignin is present.

10. Tests for Fixed oils and Fats

(a) Spot Test:

A small quantity of siddha preparation *Ganthaka parpam* was placed between 2 filter papers. Oil stains produced with any extract shows the presence of fats and fixed oils in the *Ganthaka parpam*(Harborne, 1984).

(b)Saponification Test:

A small quantity of siddha preparation *Ganthaka parpam* was treated with few drops of 0.5N alcoholic potassium hydroxide along with 2 to 3 drops of phenolphthalein. Later the mixture is refluxed for about 2h. Soap formation indicates the presence of fats and fixed oils in the *Ganthaka parpam*.

RESULTS AND DISCUSSION

The *Ganthaka parpam* was subjected to qualitative chemical investigation Details of the various tests performed for the presence of phyto constituents is shown in Table 1

Table 1 – Phytochemical tests for *Ganthaka parpam*

Tests	Results
Alkaloids	
Mayer’s test	-Ve
Dragendroff’s test	-Ve
Hager’s test	+Ve
Carbohydrates and glycosides	
Molisch test	+Ve
Legal’s test	-Ve
Borntrager’s test for anthraquinones	-Ve
Phytosterol	
Liebermann-Burchard test	-Ve
Salkowski test	-Ve
Flavonoids	
Shinoda test Magnesium turnings and hydrochloric acid (Presence of red color)	-Ve
Fluorescence test	-Ve
Tannins	
Ferric chloride test	-Ve
Potassium dichromate test	-Ve
Lead acetate test	+Ve

Proteins	
Millon’s test	-Ve
Biuret test	-Ve
Ninhydrin test	-Ve
Fixed oils and fats	
Spot test	-Ve
Saponification test	-Ve
Lignin	
Phloroglucinol test	-Ve
Saponin	
Frothing test	-Ve

(+ve) indicates the presence of phytochemical, (-ve) indicates the absence of phytochemical.

Alkaloids-decreased gastric acid secretion and inhibit the gastric motility Tannins-Tannins react with tissue promote tissue proteins. This study revealed the presence of active phytochemicals in GANDHAGA PARPAM such as alkaloids, carbohydrates, glycosides, tannins.

CONCLUSION

The phytochemical analysis reveals the presence of alkaloid, tannins, carboxylates and glycosides, Alkaloids are having stimulant activities which controls the fatigue and lethargy of the cancer patients. Tannins having astringent, haemostatic, anti-septic and toxic properties, which control symptoms of cervical cancer.

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