EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 11
Issue: 8
XX-XX
Year: 2024

PHYTOCHEMICAL ANALYSIS OF SIDDHA DRUG FORMULATION THOTTAR CHINUNGI CHOORANAM

***[1]Suganthi K. and *[2]Komalavalli T.**

[*1]PG Scholar, Department of Pothumaruthuvam, Govt. Siddha Medical College & Hospital, Palayamkottai.
[*2]Head of The Department, Department of Pothumaruthuvam, Govt. Siddha Medical College & Hospital, Palayamkottai.

***Corresponding Author: Suganthi K.**
PG Scholar, Department of Pothumaruthuvam, Govt. Siddha Medical College & Hospital, Palayamkottai.

Article Received on 25/06/2024 **Article Revised on 15/07/2024** **Article Accepted on 05/08/2024**

ABSTRACT
Medicinal plants plays a important role in our daily life. Herbal are not only serve as complements or alternatives for modern medical treatments, which also enhance the health of people. From old times herbals have been sources of safe and effective medicines. **Aim**: The aim of the present study is phytochemical analysis of the siddha drug formulation of Thottar Chinungi Chooranam. **Methods**: The extract was prepared with Thottar Chinungi Chooranam drug was to being phytochemical screening test for carbohydrate glycosides, steroids, tannins, saponins, alkaloids, proteins, phenols, terpenids. **Results and Discussion:** The quantitative analysis of phytochemical screening of siddha drug Thottar Chinungi Chooranam shows the presence of Saponin, Terpenoid, Alkaloid, Flavonoid, Glycoside, Protein.The quantitative of Thottar Chinungi Chooranam contains saponin – 30 mcg/100 mg, Terpenoid – 3mcg/100mg, Alkaloid – 48 mcg/100mg, Flavonoid – 39 mcg/100mg, Glycoside – 3mcg/100mg, Protein – 24 mcg/100mg. **Conculusion**:-This evidence based data provide valuable information is helpful to standardization of Thottar Chinungi Chooranam.

KEY WORDS:- Thottar Chinungi, Phytochemical, Diabetes mellitus, Siddha.

INTRODUCTION
Medicinal plants plays a important role in our daily life. Herbal are not only serve as complements or alternatives for modern medical treatments, which also enhance the health of people. From old times herbals have been sources of safe and effective medicines. Mimosa pudica is called as sensitive and humble plant and also called Touch me not. Mimosa Pudica is a creeping annual herb. Two well known movements are present in Mimosa Pudica. One is the very rapid movement when it is stimulated by touch. Another one is nyctinastic movement. It is a very slow movement.

Phytochemicals are biologically active naturally occurring chemical compounds found in herbals which provide health benefits for humans. Phytochemicals are mostly used as protective barrier for plants from UV rays, pollution, stress. Thottar Chinungi Chooranam contains many phytochemicals. Thottar Chinungi Chooranam indicated for diabetes mellitus. This treatment is due to the phytochemical contains in the siddha drug preparation Thottar Chinungi Chooranam. This study evaluate variable phytochemicals present in the Thottar Chinungi Chooranam.

MATERILAS AND METHODS
Selection of drug:- Thottar Chinungi Chooranam mentioned in Gunapadam Mooligai Page No.556.

Ingredients of Thottar chinungi chooranam:- Leafs and roots are used.

Pre liminaryphytochemical Analysis
1. Test for Saponins
To a few mg of extract distilled water is added and shaken well. The formation of foam indicates the presence of saponin.

2. Test for Tannin
To Substance in water is added with 5 % alcoholic ferric chloride. Dark blue colour shows presence of tannin.

3. Test for Terpenoids
To a few mg of extract in chloroform, add conc. H_2SO_4. Presence of dark brown precipitate indicates the presence of terpenoids.

4. Test for Phenol
To Substance in water is added with 5 % alcoholic ferric chloride. Dark blue or green colour shows presence of phenol.

5. Test for Steroids (Lieberman Burchard Test)
To a few mg of the extract 2 ml of chloroform is added in a dry test tube. Few drops of acetic acid is added, heated and few drops of acetic anhydride and 2 drops of concentrated sulphuric acid are added. The green colour indicates the presence of steroid.

6. Test for Quinones
To a few mg of extract, add few drops of concentrated sulphuric acid. Appearance of red colour shows the presence of quinone.

7. Test for Glycosides
Substance is treated with anthrone and concentrated sulphuric acid. On heating over a water bath, the appearance of green colour shows the presence of glycoside.

8. Test for Carbohydrates
To the sample solution, added few drops of α-naphthol and 2-3 ml conc. H_2SO_4. The appearance of reddish violet or purple ring at the junction of two liquids indicates the presence of Carbohydrates.

9. Test for Alkaloids (Dragendorff's Test)
Few mg of extract in separate test tube was warmed with 2% Sulphuric acid for 2 minutes. And it was filtered in separate test tube and few drops of Dragendorff's reagent were added. The presence of orange red precipitates indicates the presence of alkaloids.

10. Test for Flavonoid
To the substance in alcohol add 10% NaOH or ammonia. A dark yellow colour indicates the presence of flavanoid.

11. Test for Proteins (Biuret test)
To the sample solution in a test tube, add sodium hydroxide solution and then add a few drops of very dilute (1 %) copper II sulphate solution and mix gently. Appearance of purple colour indicates the presence of protein.

Phytochemical Quantitative Analysis Quantitative Estimation of flavanoids
Total flavonoid content was determined by Aluminium chloride method using catechin as a standard. 1ml of test sample and 4 ml of water were added to a volumetric flask (10 ml volume).

After 5 min 0.3 ml of 5 % Sodium nitrite, 0.3 ml of 10% Aluminium chloride was added. After 6 min incubation at room temperature, 2 ml of 1 M Sodium hydroxide was added to the reaction mixture. Immediately the final volume was made up to 10 ml with distilled water. The absorbance of the reaction mixture was measured at 510 nm against a blank spectrophotometrically. Results were expressed as catechin equivalents (mg catechin/g dried extract).

Quantitative Estimation of Saponins
Take 1ml of sample add 2ml of 8 % Vanilin in ethanol was added, mixed well and the 2ml of 72% sulphuric acid solution was added, mixed well and heated on a water bath at 60^0c for 10min. After 10 minutes the tubes were cooled. Absorbance was measured at 544nm against reagent blank. Diosgeninis used as a standard material and compared the assay with Diosgenin equivalents. Results were expressed as Diosgenin equivalents (mg catechin/g dried extract).

Quantitative Estimation of Glycoside
Take 10ml of the extract and 10ml of Baljet's reagent (95ml 1% picric acid+ 5ml of 10 % aqueous sodium hydroxide) are taken and allowed to stand for one hour. Then dilute the solution with 20ml distilled water and mix. Read the intensity of the colour obtained against blank at 495nm using a spectrophotometer. The difference between test and control is taken for calculation. Standard graph can be prepared using standard digitoxin.

Quantitative Estimation of Alkaloids
To 1ml of Methanolic extract add 5 ml pH 4.7 phosphate Buffer and 5 ml BCG solution then shake the mixture with 4 ml of chloroform. The extracts were collected in a 10-ml volumetric flask and then diluted to adjust volume with chloroform. The absorbance of the complex in chloroform was measured at 470 nm against blank prepared as above but without extract. Atropine is used as a standard material and compared the assay with Atropine equivalent.

Quantitative Estimation of Terpenoid
Total terpenoid content was determined by the method of Ghorai et al (2012) 17. To 1 mL of the plant extract, 3 mL of chloroform was added. The sample mixture was thoroughly vortexed and left for 3 min and then 200 µl of concentrated sulfuric acid (H2SO4) was added. Then it was incubated at room temperature for 1.5h-2h in dark condition and during incubation a reddish brown precipitate was formed. Then carefully and gently, all supernatant of reaction mixture was decanted without disturbing the precipitation. 3 mL of 95% (v/v) methanol was added and vortexed thoroughly until all the precipitation dissolve in methanol completely. The absorbance was read at 538 nm using UV/visible spectrophotometer.

Estimation of total proteins
Protein content was estimated by the method of Lowry et al.[14] 1 ml of sample was mixed with 0.5 ml of 0.1 N sodium hydroxide and 5 ml of alkaline copper reagent. The mixture was incubated in room temperature for 30 minutes. Folin– Ciocalteau reagent, 0.5 ml was added and incubated again for 10 minutes at room temperature.

The absorbance was read at 660 nm against a reagent blank. The estimation was done in triplicates and the results were expressed mcg/g sample.

RESULT

Table 1: preliminary phytochemical analysis.

Tests	Result
Saponins	+
Tannins	-
Phenols	-
Terpenoids	+
Alkaloids	+
Flavanoids	+
Steroids	-
Glycosides	+
Carbohydrates	-
Quinones	-
Proteins	+

Notes: mcg – microgram, mg - milligram

Table 2: Quantitative analysis of Thottar Chinungi Chooranam.

Test	OD Value 1	OD Value 2	Mean OD Value	Result
Saponin	0.116	0.126	0.121	30 mcg/100mg
Terpenoid	0.135	0.139	0.137	3 mcg/100mg
Alkaloid	0.116	0.125	0.121	48 mcg/100mg
Flavonoid	0.166	0.172	0.169	39 mcg/100mg
Glycoside	0.070	0.075	0.067	3 mcg/100mg
Protein	0.088	0.093	0.090	24 mcg/100mg

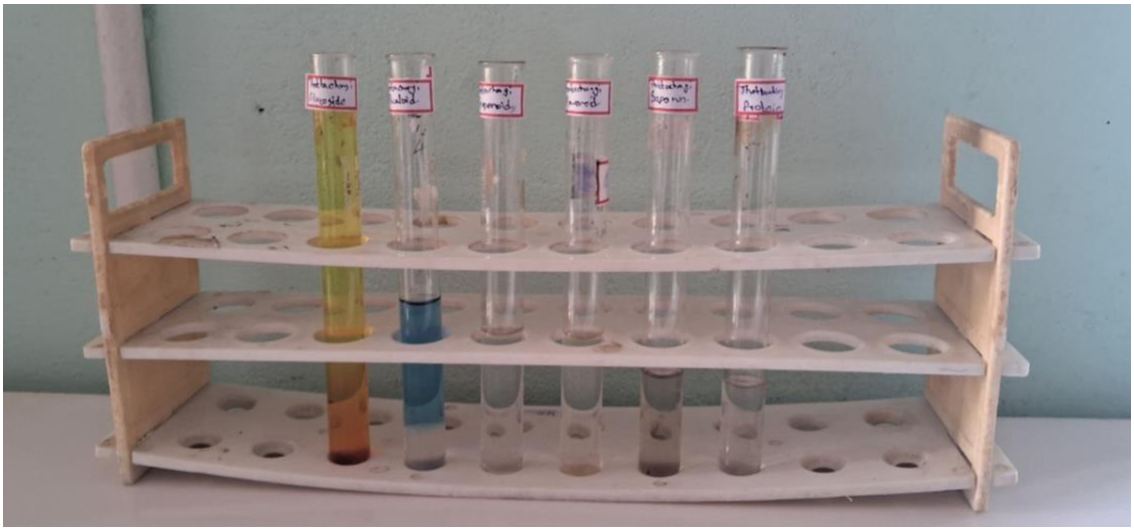

Figure 1: Quantitative analysis of Thottar Chinungi Chooranam.

CONCULUSION

The preliminary phytochemical screening of siddha drug Thottar Chinungi Chooranam shows the presence of saponin, flavanoids, terpenoid, alkaloid, glycoside, protein. The quantitative analysis of Thottar Chinungi Chooranam are responsible for its biological activity. This evidence based data provide valuable information is helpful to standardization of Thottar Chinungi Chooranam.

REFERENCE

1. Ghorai N, Chakraborty S, Gucchait S, Saha, SK, Biswas S, Estimation of total Terpenoids concentration in plant tissues using a monoterpene, Linalool as standard reagent. Nature protocol Exchange, 2012.
2. Journal of Pharmacognosy and Phytochemistry 2013; 1: 6. www.phytojournal.com Page 168 Phytochemistry of Medicinal PlantsMamta Saxena*1, Jyoti Saxena1, Rajeev Nema 2, Dharmendra Singh 2 and Abhishek Gupta 21.
3. Lowry OH, Roseobrough NJ, Farr AL, Randall RJ. Protein measurements with the Folin's phenol reagent. J Biol Chem., 1957; 193: 265-75.
4. Mimosa pudica L. (Laajvanti): An overview Hafsa Ahmad, Sakshi Sehgal, Anurag Mishra, Rajiv Gupta Department of Pharmacognosy, Faculty of Pharmacy, Babu Banarasi Das National Institute of Technology and Management, Faizabad Road, Lucknow, Uttar Pradesh, India Prof. Rajiv Gupta, Department of Pharma cognosy, Faculty of Pharmacy, Babu Banarasi Das National Institute of Technology and Management, Lucknow, Uttar Pradesh, India.
5. Naima Saeed, Muhammad R Khan, Maria Shabbir. Antioxdant activity, total Phenolic and Total Flavanoid contents of whole plant extracts Torilis

leptophylla L. BMC Complementary and Alternative medicine, 2012; 12: 221.
6. Phytochemical analysis of some selected Traditional medicinal plants in Ethiopia Misganaw Gedlu Agidew*
7. Sim, E.E. W.E.I.2011.Isolation and determination of anti-nutritional compounds from root and shells of peanut (Arachis Hypogaea).A project report of Department of Chemical Science Faculty of Science Universiti Tunku Abdul Rahman, 34-35.
8. Solich P, Sedliakova V, Karlicek R. Spectrophotometric determination of cardiac glycosides by flow-injection analysis. Anal Chim Acta., 1992; 269(2): 199-203.
9. Tejaswini, P., Pradeep, H. R., Khare, D., & Math, A. (2023). Determination of total alkaloid content in unpurified Dhattura beeja (Datura metel L. seeds) and purified Dhattura beeja (D. metel L. seeds) by UV-spectroscopic method. Journal of Drug Research in Ayurvedic Sciences, 2023; 8(2): 181-189.