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PRELIMINARY PHYTOCHEMICAL ANALYSIS OF SIDDHA FORMULATION - PARANGIPATTAI KUDINEER

Uma Kullappa Shanmugam[1]*, Karthikeyan Nagarajan[1], Kabilan Natarajan[1], Purushoth Prabhu Thiraviam[2], Balasubramanian Thiyagarajan[1] and Geethalakshmi Sekkizhar[1]

[1]The TN Dr. M. G. R Medical University, Chennai.
[2]C.L. Baid Metha College of Pharmacy, Chennai.
[1]*Department of Siddha, The TN Dr. M. G. R. Medical University, Guindy, Chennai-32. Tamil Nadu.

***Corresponding Author: Dr. Uma Kullappa Shanmugam**
Department of Siddha, The TN Dr. M. G. R. Medical University, Guindy, Chennai-32. Tamil Nadu.

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ABSTRACT
Parangipattai kudineer is a polyherbal Siddha formulation. It is widely used for all types of skin diseases. An attempt had been made to investigate the preliminary Phytochemical studies of aqueous, acetone, methanol, ethanol and chloroform extracts of Parangipattai kudineer (PPK) for fixing the parameters of pharmacognostical standard. **Methods**: Preliminary Phytochemical studies was done using standard procedure with aqueous, chloroform, ethanol, methanol and acetone extracts of Parangipattai kudineer. The different extracts of PPK was extracted by soxhlet apparatus (Hot percolation method). **Results:** The results of the test showed that alkaloids, carbohydrate, saponins, phytosterols, flavonoids, tannins, proteins and amino-acids, phenols and quinine, gum and mucilage were present and absence of glycosides and diterpenes. Extract values revealed the solubility and polarity particulars of the metabolites in the PPK.

KEYS: Phytochemical studies, Parangipattai Kudiner, Skin diseases, Soxhlet apparatus**.**

INTRODUCTION
Herbal formulations have been used since ancient times as medicines for the treatment of range of diseases.[1] Herbal products are measured to be the symbols of safety in comparison to the synthetic products. Medicinal plants are richest bio-resources of drugs of traditional systems of medicine, modern medicines, nutraceuticals, food supplements, and folk medicines, pharmaceuticals intermediate and chemical entities for synthetic drugs.[2]

There is a common concept among the people that herbal medicines have no sides effects that is nature in origin, herbs are safe. Herbal formulation might overcome resistance of antibiotics. Herbal formulations possess chemical substances generally termed as bioactive compounds include alkaloid, carbohydrates, flavonoids, phenols, tannins, saponins, steroids, protein and amino acids, etc. which give definite physiological activity on human bodies.

Root extract of *Rubia cordifolia* possess the following phytochemicals anthraquinones, flavonoids, steroids, glycosides, saponins and phenols.[3] 15 phytochemicals, 16 phytochemicals, 13 phytochemicals and 12 phytochemicals were present in acetone, methanol, ethanol and chloroform extract of rhizome of *curcuma longa* respectively.[4] *Acorus calamus* also called sweet flag. [5] Dried powdered rhizome of *Acorus calamus* has been used as a substitute for ginger, cinnamon and nutmeg.[6] Methanol extract of *Acorus calamus* contain glycosides, alkaloids, carbohydrates, phenolic compounds, flavonoids, tannins, steroids and triterpenoids.[7] Acetone, methanol, ethanol extracts of *Azadirachta indica* leaf possess strong antibacterial activity against *pseudomonas aeroginosa, escherichia coli, staphylococcus aureus and salmonella typhii*. [8] Important pharmacological activities of *Foenicum vulgare* are hepato -protective, anti -oxidant and anti-bacterial properties. [9] *Smilax china* is evaluated for the presence of steroids, gums carbohydrate, and tannins in the methanol extract of root of smilax china. [10] *Phyllanthus emblica* has alkaloids, oil, fat, glyceroids, carbohydrates, phenols, tannins, phenols, lignin, saponins, flavonoids and terpinoids.[11] *Coscinium fenestratum* is the best anti-diabetic.[12] *Terminalia bellarica* has bacterial and fungal activity and possessed phenols, alkaloids, flavonoids, tanins, amines, and carboxylic acid as functional groups in *Terminalia bellarica*.[13] *Terminalia chebula* has antioxidant components and antifungal activity.[14]

MATERIALS AND METHODS
Parangipattai kudineer was collected from Outpatient Department of The TN Dr MGR Medical University,

Chennai. Source of PPK is Aringnar Anna Government Siddha Hospital Pharmacopoeia.

Ingredients of Parangipattai kudineer are *Acorus calamus, Azardirachta indica, Coscinium fenestratum, Curcumma longa, Emblica officinalis, Foeniculum vulgare, Tinospora cardifolia, Rubia cordifolia, Smilax china, Terminalia bellarica, and Terminalia chebula.*

1. Acorus calamus 2. Azardirachta indica 3. Coscinium fenestratum 4. Curcumma longa 5. Emblica officinalis 6. Foeniculum vulgare 7. Tinospora cardifolia 8. Rubia cordifolia. 9. Smilax china 10. Terminalia bellarica. 11. Terminalia chebula.

Figure: 1- Images of Ingredients of Parangipattai kudineer

Extraction of the Parangipattai Kudineer

The extract was prepared by taking 30-gram coarse powder of Parangipattai kudineer and soaked in 180 ml of water. It was kept in Soxhlet extraction apparatus at 90 degrees Celsius for 8 hrs. The same procedure was followed for taking acetone, methanol, ethanol and chloroform extract of PPK. But the temperature was maintained in 30 degrees Celsius except aqueous extract.

The extracts obtained with each solvent were filtered through whatman filter paper no:1. The extracts were kept in water bath set at 60 degrees Celsius and allowed to evaporate the solvent. Finally, the concentrated extracts were collected separately and kept in air tight container in refrigerator until further use. After that, the respective extracts were weighed and percentage extractive values were determined.

Table: 1- Percentage yield of Various solvents

S.No	Solvents	% Yield
1	Aqueous	33%
2	Ethanol	19.8 %
3	Methanol	11.6%
4	Acetone	5.8 %
5	Chloroform	2.8 %

The preliminary phytochemical screening Test

The preliminary phytochemical screening test was carried out for each extracts of PPK as per the standard procedure.[1,15]

Detection of alkaloids

Extracts were dissolved individually in diluted hydrochloric acid and filtered.

Mayer's test

2 ml of extract was treated with few drops of Mayers' reagent, formation of yellow coloured precipitate indicates the presence of alkaloids.

Wagner's test

2 ml of filtrate was treated with Wagner's reagent. Formation of brown /reddish precipitate indicates the presence of alkaloids.

Detection of carbohydrate

Extract was dissolved individually in 5 ml distilled water and filtered. The filtrates were used to test for presence of carbohydrates.

Molisch's test
2 ml of filtrate was treated with few drops of alcoholic Alpha naphthol solution in a test tube. Formation of the violet ring at the junction indicates presence of carbohydrates.

Benedict's test
Filtrate was treated with Benedict's reagent and heated gently. Orange red precipitate indicates the presence of reducing sugars.

Detection of Saponins
Froth test
Extracts was diluted with distilled water to 20 ml and this was shaken in a graduated cylinder for 15 minutes. Formation of 1 centimeter layer of foam indicates the presence of Saponins.

Foam test
0.5gram extract was shaken with 2 ml of water. If foam produced persists for 10 minutes, it indicates the presence of Saponins.

Detection of phytosterols
Salkowski's test
Extracts was treated with chloroform and filtered; the filtrates were treated with few drops of concentrated sulphuric acid, shaken and allowed to stand for few minutes. Golden yellow colour indicates the presence of triterpenes.

Detection of phenols
Ferric Chloride test: 2 ml of extracts was treated with 3-4 drops of ferric chloride solution. Formation of bluish black colour indicates the presence of phenols.

Detection of tannins
Gelatin test
To the extracts, 1% of gelatin solution containing sodium chloride was added, formation of white precipitate indicates the presence of tannins.

Detection of flavonoids
Alkaline reagent test
Extract was treated with few drops of 10% sodium hydroxide, formation of intense yellow colour then on addition of diluted hydrochloric acid it becomes colourless, it indicates the presents of flavonoids.

Lead acetate test
Extract was treated with few drops of lead acetate solution, yellow colour precipitate indicates presence of flavonoids.

Detection of diterpenes
Copper Acetate test
Extracts were dissolved in water and treated with 3-4 drops of copper Acetate solution, formation of emerald green colour indicates the presence of diterpenes.

Test for gum and mucilage
The extract was dissolved in 10 ml of distilled water and to this 2ml of absolute alcohol with the constant stirring white cloudy precipitate indicates the presence of gum and mucilage.

Detection of Glycosides
Liebermann's test
2ml of extract was treated with 2ml chloroform and 2ml of acetic acid, Violet colour change into blue and green indicates presence of Glycosides.

Test for Quinones
Extract was treated with sodium hydroxide blue or red precipitate indicates the presence of Quinones.

RESULT
The Preliminary phytochemical studies of extract of Parangipattai kudineer in various solvents were done using standard procedures. The results were presented in tables. The present study reveals that the bioactive compounds alkaloids, carbohydrate, saponins, phytosterols, flavonoids, tannins, proteins and amino-acids, phenols and quinine, gum and mucilage were present and absence of glycosides and diterpenes in the extracts of PPK.

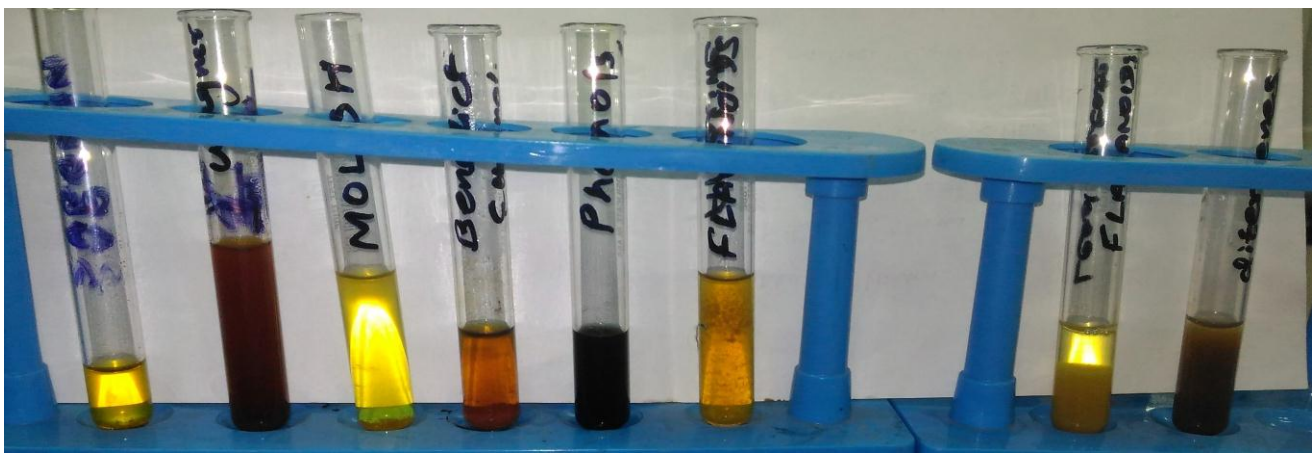

Figure: 2 -Phytochemical Analysis Of Ethanol Extract Of Parangi Pattai Kudineer

Tab: 2- Results of Preliminary phytochemical analysis of different extracts of PPK

S.no	Phytochemicals	Test Name	H_2O ext.	Ethanol ext.	Acetone ext.	Methanol ext.	Chloroform ext.
1	Alkaloids	Mayer's test	-	-	-	-	-
		Wagner's test	+	-	-	+	-
2	Carbohydrates	Molisch's test	-	-	-	-	-
		Benedict's test	+	+	+	+	-
3	Glycosides	Libermann Burchard's test	-	-	-	-	-
4	Saponins	Froth test	+	-	-	-	-
		Foam test	+	-	-	-	-
5	Phytosterols	Salkowski's test	+	+	+	+	+
6	Phenols	Ferric chloride test	+	+	+	+	-
7	Tannins	Gelatin test	-	+	+	+	-
8	Flavonoids	Alkaline Reagent test	+	+	+	+	+
		Lead acetate test	+	+	+	+	+
9	Proteins and Amino acids	Xanthoproteic test	+	+	+	+	+
10	Diterpenes	Copper acetate test	-	-	-	-	-
11	Gum & mucilage	Extract + alcohol	+	-	-	-	-
12	Quinone	NAOH + Extract	+	+	+	+	+

+ = Present. - = Absent

DISCUSSION AND CONCLUSION

Parangi pattai kudineer is a polyherbal formulation which has many therapeutic effects. It is being prescribed for all types of skin diseases in Government Siddha Hospitals for 5 decades. PPK extracts were taken by soxhlet apparatus using different solvents. Aqueous extract yield is more than other extracts. Chloroform extract received in less quantity when comparing other extracts of PPK. In Siddha literature, therapeutic effect is indicated for water extract of PPK. This study also shows more yield and maximum phytochemicals present in water extract of PPK.

All the extracts were subjected to phytochemical analysis. It was found that alkaloids, carbohydrates, saponins, phytosterols, phenols,flavonoids, tannin, quinones, gum and mucilage, proteins and amino acids were present in various extract of PPK. But in all extracts of PPK showed absence of glycosides and diterpenes. Hence, this study also confirms scientifically that value of using kudineer as mentioned in the Siddha literature.

Flavonoids and tannins are phenolic compounds and plant phenol are a major group of phytochemicals that act as primary anti-oxidants. The above bioactive compounds might be responsible for curing skin diseases. Further studies were continued for biological activities of this herbal formulation.

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