ANTI MICROBIAL AND BIOCHEMICAL STUDY OF SHENBAGAPOO KULIGAI

Elavarasi.A,

Associate professor, Dept of Udal koorugal,
Sir Isac Newton Siddha Medical College &Hospital, Nagapattinam.

Abstract: Siddha medicine is the oldest and the foremost of all other medical systems of the world. According to "Iymbootha kolkai" by comparing 3 dhosha's and 6 tastes the medicines are chosen for a particular disease. There are 32 internal medicines in their system. Kuligai is one of the internal medicine which is in the tablet form. Shenbaga poo kuligai is a trial medicine choosen to treat suzhi mantham which is co-related with Acute Respiratory Tract Infections such as Nasopharyngitis and WALRI in modern aspect. Evaluations of shenbagapoo kuligai's antimicrobial activity done in malar micro diagnostic centre, Tirunelveli and biochemical analysis have done in biochemistry lab in Government Siddha Medical College Palayamkottai. The anti-microbial testing showed that shanbagapoo kuligai is active against organisms such as E.coli and Klebsellia pneumoniae. Biochemical analysis of trial drugs shows the presence of calcium, sulphate, starch, ferrous iron, unsaturated compound, reducing sugar ,aminoacids and chloride. So this study reveals it to be a highly effective medicine for suzhi mantham in siddha aspect.

INTRODUCTION

Siddha system of medicine speaks about the diseases of the children under Pillaipini Maruthuvam or Kuzhanthai maruthuvam. Siddhars says that the child may have disease from embryological stage (Karuvil Thondrum Noigal) the pediatric illness are classified into

1. Agakkarana Noigal
2. Purakkarana Noigal

Mantham is one of the Agakkarana Noi which is classified into mainly 21 types. Mantham is a group of Gastro intestinal disturbances such as indigestion and loss of appetitie. **Suzhi Mantham** is one of the types of Mantham**,** it is a respiratory disease followed by digestive disorders which may produce malnutrition and retardation of growth in children and the clinical features are intermittent fever, cough with or without expectoration,wheezing, nasal obstruction, respiratory distress, rib retraction, loss of appetite, hic cough, cough with interfering sleep. It is mainly due to changes of food habits, unhygienic environment, low economic status, under nutrition, stress and strain. The trial drug **shenbaga poo kuligai** are choosen on the basis of classical attributes of respective ingredients according to the specific action which may correct the vitiated humors in **Suzhi Mantham** and a preclinical study involving antimicrobial activity and biochemical analysis have done.

RAW DRUG COLLECTION

Raw drugs of shenbaga poo kuligai is collected in pharmacy of Government Siddha Medical College,Palayamkottai.

INGREDIANTS OF A TRAIL DRUG SHENBAGAPOO KULIGAI

S.No	Botanical Name/English Name	Tamil Name
1	Michelia champaca	Shenbagam
2	Saussurea lappa	Kostam
3	Plectranthus amboinicus	Vilamichaiver
4	Elettaria cardamomum	Ealam
5	Fel bovinum purifactum	Korosanai
6	Ferruginous shale	Sathra bedi
7	Glycyrrhiza glabra	Adhimadhuram
8	Vetiveria zizanioides	Vetiver
9	Artemisia nilagirica	Masipachiai

METHOD OF PREPARATION

The siddha formulation shenbagapoo kuligai is prepared as per SOP in Government Siddha Medical College,Palayamkottai.All the raw drugs are collected,properly identified and purified according to the purification process of each drugs.They are made into powder and grinded smoothly using the juice of vetiver stem,then the mixture is made into tablet form and allowed to dried and properly stored.

ANTIMICROBIAL STUDIES

Aim:

To study the Anti-microbial action of "Shenbaga Poo Kuligai" by **"Paper disc agar diffusion method"** (Kirby – bauyer method)

Medium:

Muller Hinton Agar.

Components of Medium

Beef extract	-	300gms/lit
Agar	-	17gms/lit
Starch	-	1.5gms/lit
Casein Hydrolysate	-	17.5gms/lit
Distilled water	-	1000ml
PH	-	7.6

Procedure:

Preparation of inoculum:

The given microorganism is inoculated in 1 mil of peptone water under sterile condition. The inoculum is incubated at 37^0 C for 2 hours then the turbidity of the inoculums is adjusted to 0.5 μc Farland turbidity standards. The inoculums was poured in a Muller Hinton agar plate and uniformly spreaded over the plate. The excess inoculum was discarded.

Disc preparation:

The known quantity of the given chemical compound is impregnated in a 6mm diameter filter paper disc and applied over the inoculum. Then the Muller Hinton agar plate is incubated at 37^0 C for overnight. The zone of clearance is measured with a scale and the sensitivity of the organism to the given trial drug is assessed. The diameter of zone of inhibition was observed and recorded.

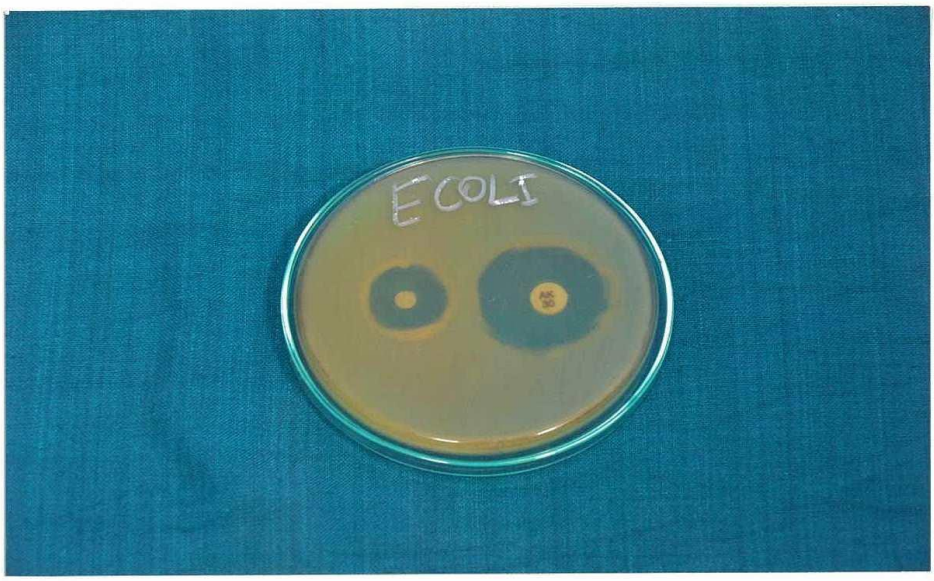
TABULATION OF ANTI MICROBIAL ACTIVITY OF TRIAL MEDICINES

S.No	Micro Organism	Susceptibility	Zone Size	
			Amikacin Control	Shenbaga Poo Kuligai Zone
1.	Streptococcus Pneumoniae	Resistant	-	-
2.	Staphylo coccus aureus	Resistant	-	-
3.	Escherichia Coli	Sensitive	13 mm	18 mm
4.	Klebsiella Pneumoniae	Moderate Sensitive	15 mm	10 mm

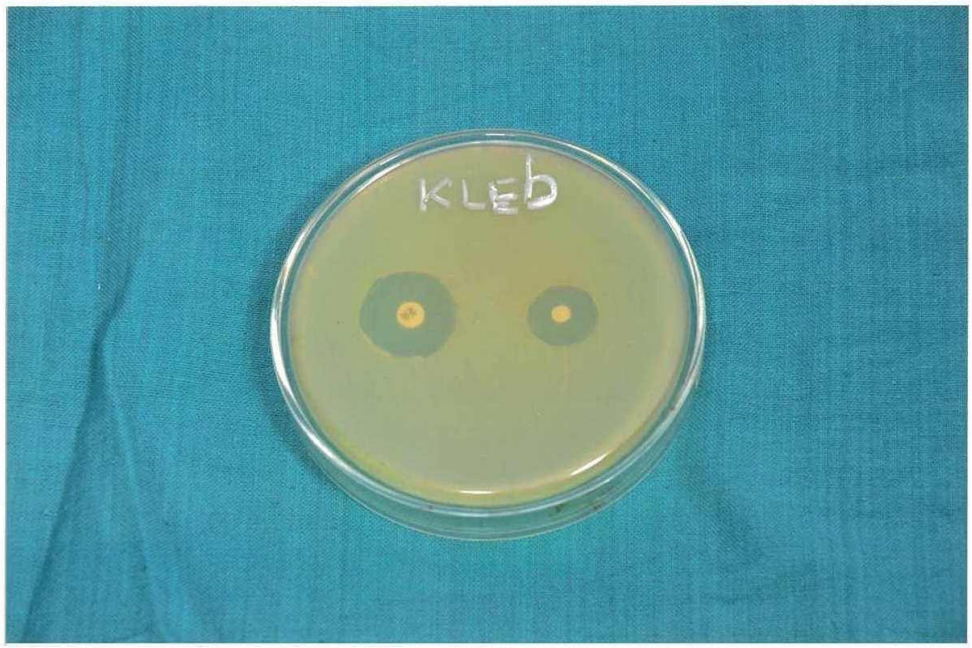
Result:

The test drug Shenbaga poo kuligai was moderate sensitive against Klebsiela pneumonia sensitive against Escherichia coli.

ANTI MICROBIAL ACTIVITY OF SHENBAGA POO KULIGAI



Sensitive against Escherichia Coli



BIO-CHEMICAL ANALYSIS OF PREPARATION OF THE EXTRACT OF SHENBAGA POO KULIGAI

5gms of the drug was weighed accurately and placed in 250ml clean beaker. Then 50ml of distilled water is added and dissolved well. Then it is boiled well for about 10 minutes. It is cooled and filtered in a 100ml volumetric flask and then it is makeup to 100ml with distilled water. This fluid is taken for analysis.

QUALITATIVE ANALYSIS

S. NO	EXPERIMENT	OBSERVATION	INFERENCE
1	**TEST FOR CALCIUM:** 2ml of the above prepared extract is taken in a clean test tube. To this add 2ml of 4% Ammonium oxalate solution.	A white precipitates formed.	Indicates the presence of Calcium
2	**TEST FOR SULPHATE:** 2ml of the extract is added to 5% barium chloride solution.	A white precipitate is formed	Indicates the presence of sulphate
3	**TEST FOR CHLORIDE:** The extract is added with silver nitrate solution.	No white precipitate is formed	Absence of chloride
4	**TEST FOR CARBONATE:** The substance is treated with concentrated Hcl	No brisk effervessence is formed.	Absence of carbonate
5	**TEST FOR STARCH:** The extract is added with weak iodine solution	Blue colour is formed	Indicates the presence of starch
6	**TEST FOR IRON FERRIC:** The extract is acidified with Glacial acetic acid and potassium ferro cyanide.	No blue colour is formed.	Absence of Ferric Iron
7	**TEST FOR IRON FERROUS:** The extract is treated with concentrated Nitric acid and ammonium thio cyanate solution.	Blood red colour is formed	Indicates the presence of Ferrous Iron.
8	**TEST FOR PHOSPHATE:** The extract is treated with Ammonium Molybdate and concentrated nitric acid.	No Yellow precpitate is formed	Absence of phosphate.
9	**TEST FOR ALBUMIN:** The extract is treated with Esbachs Reagent.	No yellow precpitate is formed	Absence of Albumin
10	**TEST FOR TANNIC ACID:** The extract is treated with ferric chloride.	No blue black precpitate is formed.	Absence of Tannic acid
11	**TEST FOR UNSATURATION:** Potassium permanganate solution is added to the extract.	It gets decolourised	Indicates the presence of unsaturated compound.

12	**TEST FOR THE REDUCING SUGAR:** 5ml of Benedicts qualitative solution is taken in a test tube and allowed to boil for 2mts and added 8-10 drops of the extract and again boil it for 2mts.	Colour change occurs	Indicates the presence of Reducing sugar
13	**TEST FOR AMINO ACID:** One or two drops of the extract is placed on a filter paper and dried it well	Voilet colour is formed	Indicates the presence of Amino acid
14	**TEST FOR ZINC:** The extract is treated with potassium ferrocyanide.	No white precpitate is formed	Absence of Zinc.

Inference:

In the above analysis indicates the presence of Calcium, Sulphate, Chloride, Starch, Ferrous iron, Unsatuarated compounds, Reducing sugar and Amino acids.

CONCLUSION

The Global burden of respiratory infection in children, increasing prevalence and its impact it reducing the quality of life in children has prompted the author to choose the efficient drug which is believed to influence the immune system.

Biochemical analysis:

The Biochemical analysis of shenbaga poo kuligai prove that it has calcium, sulphate, chloride, starch, ferrous iron, phoshate, tannic acid, unsaturated compounds, and amino acids.

Antimicrobial activity:

The results in the present Anti-microbial study prove that the Shenbaga poo kuligai has significant antimicrobial activities against Escherichia coli and klebsiella pneumoniae.

The trial medicine ingredients harmless to children.

So it is concluded that the drug **Shenbaga poo kuligai** has shown very good in view of efficacy and its activity against the organisms causing respiratory and gastrointestinal infections .Hence it proves to be an effective medicine to treat suzhi mantham in children as mentioned in the literatures.

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