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Research Article

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Biochemical and Antimicrobial study of the drug Santhanathi kuligai

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Abstract

The siddha system of medicine is one of the earliest traditional medical system in the world and deals with physical, Psychological, Social and spiritual wellbeing of an individual. The present study was designed to evaluate the biochemical and antimicrobial activity of the drug santhanathi kuligai. The drug was tested against selected Gram positive and Gram negative species .The drug limited the growth of Gram positive and Gram negative groups tested. This study shows that the drug santhanathi kuligai contains a biochemical ingredients can be used as a potential source of antimicrobial activity.

Keywords: siddha system, santhanathi kuligai, biochemical and antimicrobial activity

Introduction

Siddha system of medicine is one of the ancients system by our siddhars. It describes the various methodologies for diagnosis and curing the disease..The siddha system involves the balancing mukkutram (vatham, pitham, kabam) which alters our body function and produce a disease. Siddha literature contains enormous amount of therapeutic methods. The literatures which restores the medicinal plants and various therapeutic ailments for childrens.

Kanasuram is one of the most common problems seen by physicians more prevalent in children of low socioeconomic countries due to poor nourishment, poverty, recurrent infections, low birth weight babies. It is a major threat of morbidity and mortality due to local and systemic complications..The medicine santhanathi kuligai easily clears the infection of the children and balances the mukkutram and maintains the nutritive status of the child . This review article will help to provide details of phytochemical analysis and anti microbial activity of santhanathi kuligai and how the drug is effective to the

childrens. It has been found to possess antipyretic, anti inflammatory and anti microbial activity.

Materials and Methods

Research methods:

This study proceeded in GSMC & H, Palayamkottai.

Research Drug:

Santhanathikuligai.

1. Drug selection:

The drug selection of Siddha herbal formulation 'SANTHANATHI KULIGAI' as internal medicine in treating the disease KANASURAM' in children with in the age limit of 3-12 years as given in the Siddha text book of **'PARARASASEGARA VAITHIYAM'** pg.no:914.

4. Preparation:

Ingredients:

S.No	Drug name	Botanical name	Quantity
1.	Santhanam	*Santalum album*	20 gm
2.	Kottam	*Costus speciosus*	20 gm
3.	Venkodiveli	*Sodium chloride*	20 gm
4.	Sengkodiveli	*Plumbago zeylanica*	20 gm
5.	Agil	*Aconitum heterophyllum*	20 gm
6.	Koraikizhangu	*Allium sativum*	20 gm
7.	Elam	*Acorus calamus*	20 gm
8.	Lavangam	*Syzygium aromaticum*	20 gm
9.	Karpooram	*Camphor*	20 gm
9.	Sathikkai	*Myristica fragrans*	20 gm
10.	Thakkolam	*Piper cubeba*	20 gm
11.	Munthirigaipalam	*Vitisvinifera*	20 gm
12.	Paereechampalam	*Phonea dactilifera*	20 gm
13.	Korosanai	*FelBovinum Purifactum*	20 gm
14.	Patchai karpooram	*Borneo camphor*	20 gm
15.	Vetpalaiarisi	*Wrightia tinctoria*	20 gm
16.	Kadukkai	*Terminalia chebula*	20 gm
17.	Nellikkai	*Phyllanthu semblica*	20 gm
18.	Thandrikkai	*Terminalia bellirica*	20 gm
19.	Karudapatchai	*Selaginella plana*	20 gm
20.	Patchilai	*Ocimum basilicum*	20 gm

The preparation of any herbo formulation in *Siddha* involves the following steps:

1. Authentication of raw material
2. Purification
3. Preparation
4. Authentication of prepared drug

2. Authentication of raw material:

The raw drugs has to be authenticated by the experts of gunapadam of Government Siddha Medical College, Palayamkottai. The specimen sample of each raw material has been kept in the PG gunapadam department individually for future reference.

3. Purification:

All drug will be purified as per clinical siddha literature

All the raw drugs are powdered and add in a kalvam and grind it with panneer to make a paste. Then it is roll into a 65 mg tablet. Dry it in a shadow light.

5. Storage of the drug:

The prepared test drug was stored in a clean, air tight glass container. The contents were inspected frequently to avoid moisture and insects.

6. Administration of the drug

Form of the medicine :Maathirai
Route of administration :Internal
Dose :130 mg thrice a day
Adjuvant :Ilaneer
Indication :Kanasuram (fever)

7. Authentication of prepared drug:

Resulting product of preparation will be authenticated by the trained experts from the Gunapadam department of Govt. Siddha Medical College, Palayamkottai for its completion.

8. Quality assurance of prepared drug:

Quality assurance will be performed as per the PLIM (Pharmacopoeial Laboratory for Indian Medicine) guidelines and the analytical parameters are done as follows.

Preparation of the extract:

5gram of the drug was weighed accurately and placed in a 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 makes up to 100ml with distilled water. This fluid is taken for analysis.

Phytochemical analysis of Santhanathi kuligai

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	No white precipitate is formed	Absence of calcium
2	**Test for sulphate**: 2ml of the extract is added to 5% Barium chloride solution.	No white precipitate is formed	Absence of sulphate
3	**Test for chloride**: The extract is treated 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 effervescence 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 ferric iron**: The extract is acidified with laccial acetic and pottasiumferrocyanide.	No blue colour is formed	Absence of ferric iron

7	**Test for ferrous iron:** The extract is treated with concentrated nitric acid and ammonium thiocyanate 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 precipitate is formed	Absence of phosphate
9	**Test for albumin**: The extract is treated with esbach reagent.	No yellow precipitate is formed	Absence of phosphate
10	**Test For Tannic Acid**: The extract is treated with ferric chloride.	Blue black precipitate is formed	Absence of tannic acid
11	**Test for unsaturation:** Bayer's test-potassium permanganate solution is added to the extract.	It gets decolourised	Indicates the presence of unsaturated compound
12	**Test for the redusing sugar**: 5 ml of the benedict's qualitative solution is taken in a test tube and allowed to boil for 2 minutes and add 8-10 drops of the extract and again boil it for 2 minutes.	Colour change occurs	Indicates the presence of reducing sugar
13	**Test for amino acid:** one or two drops of the extract is placed on filter paper and dried well. After drying,1% ninhydrin is sprayed over the paper and gain dried.	Violet colour is formed	Indicates the presence of amino acid
14	**Test for zinc**: The extract is treated with pottasiumferrocyanide.	No white precipitate is formed	Absence of zinc

Anti – Microbial Activity

Aim:

To study the Anti – Microbial Activity of **SANTHANATHI KULIGAI** against ***Staphylococcus aureus, E.coli, Klebshiella pneumoniae*** **and** ***Streptococcus pneumoniae.***

Materials and Methods:

The Method Known as Kriby – Bauer (Disk diffusion) was used. Muller – Hinton Agar was used in this method.

Components of this Agar:

Beef extract - 300 g/I
Agar - 17 g/I
Starch - 1.5 g/I
Casein hydropyxalate - 17.5 g/I
Distilled water - 1000 ml
pH - 7.6

Procedure:

After preparing the agar plates, the organism was streaked on the medium and the trial drug was loaded using disk method with the concentration of 1 ml/ml Adathodainei and amikacin was used as the control drug.The plates were observed after incubation at 37 degree C for overnight and presence of inhibition zone was measured.

Results and Discussion

Sample description

State	Solid
Nature	Smooth Surface
Odor	Strongly Aromatic
Touch / Consistency	Hard solid
Flow Property	Free flowing
Appearance	Dark Brownish

Phytochemical constituents:

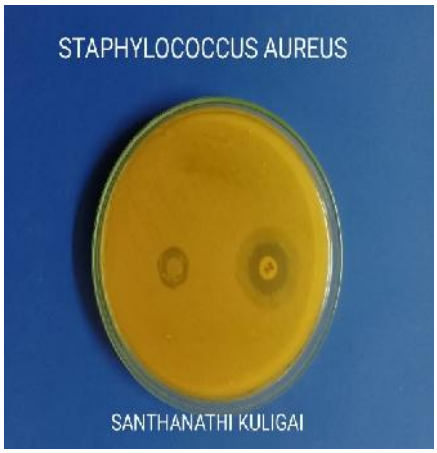
The extract prepared from the given sample SANTHANATHI KULIGAI contains **Ferrous iron, Starch, Unsaturated compounds, Reducing sugar, Amino acid.**

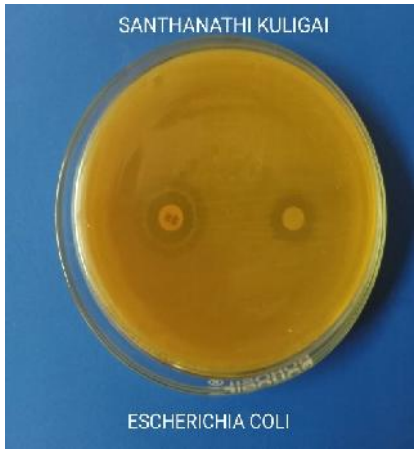
The body digests starch by metabolizing it into glucose, which passes into the blood stream, and circulates the body.

Antimicrobial activity: The drug Santhanathikuligai shows moderate sensitive to *Escherichia coli*, *Staphylococcus aureus* and Resistant to *Streptococcus pneumoniae* and *Klebshiella pneumonia.*

Zone of inhibition of drug santhanathikuligai

S.No	Organism	Sensitivity	Zone of size of Drug Santhanathikuligai		Zone size of control (Amikacin)
1.	*Escherichia coli*	Moderate sensitive	10mm		17 mm
2.	*Staphylococcus aureus*	Moderate sensitive	8mm		16 mm
3.	*Streptococcus pneumoniae*	Resistant	-		17 mm
4.	*Klebshiella pneumoniae*	Resistant	-		16 mm





Zone of inhibition of *S.aureus* Zone of inhibition of *E.coli*

Conclusion

The biological activities of the drug santhanathikuligai are very effective in the treatment of kanasuram and various infectious fever. The medicinal drugs contains the medicinal values in the research studies. The research studies shown that it contains the antimicrobial, anti inflammatory activity and high nutritional values. Phytochemical studies on active constituents of the drug is expected to serve as lead in the development of bioactive antimicrobial compounds.

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