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Research Article

STANDARDISATION OF ADATHODAI NEI USED FOR ANNAKKU THOORU THAABITHAM (TONSILLITIS)

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A B S T R A C T

In the siddha system of medicine, Human beings were viewed as a microcosm and the universe as a macrocosm. Siddha system is guiding us to lead a perfect living in this world, Starting from the first day of birth to the death. Tonsillitis (Annakku Thooru Thabitham) is a major threat of morbidity and mortality due to local and systemic complications. Siddharshas enumerated various effective internal and external remedies for the above said conditions. Among internal medicine the form of Nei lipid based medicine are nutritive, easily absorbed and also cross blood brain barrier to reduce the symptoms. Standardization is necessary to make sure the availability of a consistent product and can assure a reliable product with definite constituents. Standardisation is essential to assess quality, Consistency of active principles and therapeutic efficacy of drugs as per PLIM guidelines. This review article will help to provide details of information about Organoleptic characters, Physicochemical analysis, Phytochemical analysis of herbo mineral ingredients of adathodai nei

INTRODUCTION

Standardization is necessary to make sure the availability of a consistent product and can assure a reliable product with definite constituents. Standardisation is essential to assess quality, Consistency of active principles and therapeutic efficacy of drugs. .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. In the siddha system of medicine, Human beings were viewed as a microcosm and the universe as a macrocosm. Siddha system is guiding us to lead a perfect living in this world, starting from the first day of birth to the death. Paediatric illness of the children are classified into

1. Agakarana noigal due to intra uterine factors (develops congenitally)
2. Purakarana noigal due to environmental factors.

Disease of tonsils is most common problems seen by physicians more prevalent in children of low socioeconomic countries due to poor nourishment, Poor orodental hygiene and congested surroundings. It is a major threat of morbidity and mortality due to local and systemic complications. Treatment is aimed at restoring balance to the mind-body system. Diet and lifestyle play a major role not only in maintaining health but also in curing diseases. Siddhars have enumerated various effective internal and external remedies for the above said conditions.

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Among internal medicine the form of Nei lipid based medicine are nutritive, easily absorbed and also cross blood brain barrier to reduce the symptoms. This review article will help to provide details of information about physicochemicalanalysis, phytochemical analysis of herbo mineral ingredients of adathodai nei

MATERIALS AND METHODS

Drug selection

This present study, the herb mineral formulation Adathodai nei of compound drug preparation was taken for Annakku thooru thaabitham mentioned in the siddha literature Bharathathin siddha marundhu seimurai kurippu nool paguthi –I'(published by ministry of health and family wealth fare department of health India) Page No – 273.

Ingredients of adathodai nei **Table 1**

S.No	Name of the Plant/Mineral	Botanical Name	Quantity
1	Adathodai Leaf extract	*Justicia adathoda*	2.8 litres
2	Yaanai Thippili	*Scindapsus officinales*	5 grams
3	Thippili	*Piper longum*	5 grams
4	Chukku	*Zingiber officinale*	5 grams
5	Kodivelli verpattai	*Plumbago zeylanica*	5 grams
6	Induppu	*Rock salt*	5 grams
7	Yavatcharam	*Potassium carbonate*	5 grams
8	Sathichaaram	-	5 grams
9	Cows milk	-	2.8 litres
10	Cows ghee	-	2.8 litres

Collection of the HERBO Mineral Materials

Raw drugs were collected from Gopal asan shop except sathichaaram and Yavatchaaram.

Sathichaaram and Yavatchaaram were prepared by Vaippu murai according to the literature Gunapadam Thathu seeva vaguppu.

Adathodai leaves were collected from near college in palayamkottai.

Identification and Authentication of the Drug

All the ingredients of Adathodai nei were initially identified and Authenticated by the Head of the department of Gunapadam in Government Siddha Medical College, Palayamkottai.

Purification of the Drugs

Purification process was done as per classical siddha literatures.

Preparation of the Trial Drug Adathodai NEI

Procedure

The above raw drugs were powdered and added little cow's milk and grind them well. Then mix this with milk and add adathodai's extract and ghee and boil and take that in a correct texture then it is filtered and stored in a glass container.

Administration of the Drug

Form of medicine – Nei
Route of Administration – Internal
Dose – 500 mg
Adjuvant – honey
Indication – Annakku Thooru Thaabitham.

Organoleptic characters

State, Nature, Odor, Consistency, Appearance of the drug were noted.

Solubility Profile

Procedure

A pinch of sample (Adathodai nei) was taken in a dry test tube and to it 2 ml of the solvent was added and shaken well for about a minute and the results are observed. The test was done for solvents like chloroform, Ethanol, Water, Ethyl acetate and DMSO.

Physicochemical Analysis of Adathodai NEI

Determination of iodine value

About 20 gram of test sample was transferred into iodine flask. To which 10 ml of chloroform was added and warmed slightly and cooled for 10 minutes. Followed by this about 25 ml of Wiji's Solution was added in the same flask and shaken well. The flask was allowed to stand for 30 minutes and refrigerated for an hour about 10 ml of KI Solution was added to this and titrated against 0.1 N sodium thiosulphate solutions until the appearance of yellow colour.1 ml of starch indicator was added and gain titrated against the sodium thiosulphate solution from the burette. Disappearance of blue colour indicates end point. Repeat the above procedure without taking sample and note the corresponding reading for blank titration.

Determination of Saponification value

About 2 grams of test sample was transferred into the round bottomed flask. To this about 20 ml of 0.5 N alcoholic KOH solutions was added to the round bottomed flask. Repeat the same procedure without taking the sample for blank titration. Reflux both sample and blank round bottomed flask for 1 hour. Afterreflux, allow both the round bottomed flasks to cool. Titrate the samples using 0.5 N HCL with phenolphthalein indicator. The disappearance of pink indicates the end point.

Determination of viscosity value

Viscosity determination were been carried out using Ostwald viscometers. Measurement of viscosity involves the determination of the time required for a given volume of liquid to flow through a capillary. The liquid is added to the viscometer, pulled into the upper reservoir by suction, and then allowed to drain by gravity back into the lower reservoir. The time that it takes for the liquid to pass between two etched marks, one above and one below the upper reservoir, is measured.

Determination of refractive index

Determination of RL was carried out using refract meter.

Determination of weight per ml

Weight per ml was determined using the comparative weight calibration method, in which the weight of 1 ml of the base of the formulation was calculated and then weight 1 ml of finished formulation were been calculated. The difference between weight variations of the base with respect to finished formulation calculated as an index of weight per ml.

Acid value

Accurately 5 gram of test sample was weighed and transferred into a 250 ml conical flask. To this, a 50 ml of neutralized alcohol solution was added. This mixture was heated for 10 minutes by heating mantle. Afterwards; the solution was taken out for after 10 min and 1 or 2 drops of Phenolphthalein indicator was added. This solution was titrated against KOH solution from the burette. The appearance of pink colour indicated the end point. The volume of consumed KOH solution was determined and the titration of test sample was carried out in triplicate and the mean of the following expression.

Acid value = Titre value X 0.00561X1000 / wt. of test sample (g)

Peroxide value

5 g of the substance being examined, accurately weighed, into a 250-ml glass – stoppered conical flask, add 30 ml of a mixture of 3 volumes of glacial acetic acid and 2 volumes of chloroform, swirl until dissolved and add 0.5 ml volumes of saturated potassium iodide solution. Allow to stand for exactly 1 minute, with occasional shaking, add 30 ml of water and titrate gradually, with continuous and vigorous shaking, with 0.01 M solution thiosulphate until the yellow colour almost disappears. Add 0.5 ml of starch solution and continue the titration, shaking vigorously until the blue colour just disappears (anml).Repeat the operation omitting the substance being examined (bml).The volume of 0.01 M sodium thiosulphate in the blank determination must not exceed 0.1 ml.

Phytochemical Analysis of Adathodai Nei

The Phytochemical screening test was carried out for the extract of Adathodai nei as per the standard procedure was done by the experts of Biochemistry department, Government siddha medical college and hospital, Palayamkottai.

Preparation of the Extract:

5 gram 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.

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. Formation of white coloured precipitate indicates presence of calcium

Test for Sulphate

2ml of the extract is added to 5% Barium chloride solution. Formation of white coloured precipitate indicates presence of Sulphate

Test for Chloride

The extract is treated with silver nitrate solution. Formation of white coloured precipitate indicates presence of chloride.

Test for Carbonate

The substance is treated with concentrated HCL. Formation of brisk effervescence indicates presence of carbonate.

Test for Starch

The extract is added with weak iodine solution. Formation of blue colour indicates the presence of Starch.

Test for Ferric Iron

The extract is acidified with glacial acetic and potassium Ferro cyanide. Formation of blue colour indicates the presence of Ferric iron.

Test for Ferrous Iron

The extract is treated with concentrated nitric acid and ammonium thiocyanate solution. Formation of blood red colour indicates presence of ferrous iron.

Test for Phosphate

The extract is treated with Ammonium molybdate and concentrated nitric acid. Formation of yellow precipitate indicates presence of Phosphate.

Test for Albumin

The extract is treated with esbach reagent. Formation of yellow precipitate indicates presence of Albumin.

Test for Tannic Acid

The extract is treated with ferric chloride. Formation of blue black precipitate indicates presence of Tannic acid.

Test for Unsaturation

Bayer's test-potassium permanganate solution is added to the extract. If it gets decolourates, it indicates the presence of unsaturated compounds.

Test for the Reducing 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. If it gets any colour change it indicates the presence of reducing sugar.

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. If it gets violet colour, it indicates the presence of Amino acid

Test for Zinc

The extract is treated with potassium Ferro cyanide. Formation of white coloured precipitate indicates presence of Zinc.

RESULTS AND DISCUSSION

Organoleptic Characters

The drug Adathodai nei seems to be Semisolid, Dense viscous, Characteristic, Greasy, Non free flowing, Pale brownish white

Table 2 Organoleptic characters

State	Semisolid
Nature	Dense viscous
Odor	Characteristic
Consistency/Touch	Greasy
Flow property	Non – free flowing
Appearance	Pale brownish white

Solubility Profile

Solubility is the major factor that controls the bioavailability of a drug substance. It is useful to determine the form of drug and processing of its dosage form.

Table 2 A Solubility profile

S.NO	Solvent used	Solubility /Dispersibility
1	Chloroform	Soluble
2	Ethanol	Insoluble
3	Water	Insoluble
4	Ethyl acetate	Soluble
5	DMSO	Insoluble

Physicochemical Evaluation **Table 3**

S.No	Parameter	Adathodai nei
1	Viscosity at 50 degree c (Pa s)	121.98
2	Refractive index	1.56
3	Weight per ml (gm/ml)	0.4615
4	Iodine value (mg 12/g)	72.73
5	Saponification value (mg of KOH to saponify 1 gm of fat)	210.08
6	Acid value mg KOH /g	0.1122
7	Peroxidase Value mEq/Kg	6.05

Phytochemical Evaluation Table 4

The extract prepared from the given sample ADATHODAI NEI contains Sulphate, Chloride, Starch, Unsaturated compounds.

Table 4 Phytochemical evaluation

S.no	Phytochemicals	Results
1	Calcium	Absent
2	Sulphate	Present
3	Chloride	Present
4	Carbonate	Absent
5	Starch	Present
6	Ferric Iron	Absent
7	Ferrous Iron	Absent
8	Phosphate	Absent
9	Albumin	Absent
10	Tannic acid	Absent
11	Unsaturation	Present

12	Reducing sugar	Absent
13	Amino acid	Absent
14	Zinc	Absent

CONCLUSION

Adathodai nei has been standardized by using quality parameters. The results thus obtained can be used as reference while setting the pharmacopoeia standards for Adathodai nei for the benefit of Annakku thooru thabitham patients without any unwarranted complications.

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