



Biochemical Analysis Of Siddha Drug *Neeradaipu Ennai*

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ABSTRACT:

The siddha system is one of the oldest systems in India. The basic principles of siddha system include three vital humors (*Vatham, Pitham, Kabam*). Any imbalance of three humors leads to disease. According to siddha science to prevent the ageing process, they discovered and used various kinds of treatments like *Muppu, Kaya kalpam, Yoga* and also internal medicines. *Neeradaipu ennai* is a liquid form of internal medicine indicated for *Neeradaipu* in siddha literature. The investigation aimed to assess the biochemical analysis of the trial medicine *Neeradaipu ennai*, demonstrates the presence of sodium, iron and alkaloids. As a result, I conclude that the existence of these substances will be effective in the treatment of *Prosthakola vekkam*.

Key words: *Prosthakola vekkam, Neeradaipu ennai*, Benign prostatic hyperplasia, Biochemical analysis.

INTRODUCTION: Prostate gland is termed as *Prosthakolam* according to siddha literature^[1]. Hyperplasia of this gland is termed as *Prosthakola vekkam*. It is more common in elderly males. *Neeradaipu ennai* is a liquid form of internal medication indicated for *Neeradaipu* in siddha literature. The aim of this study is to assess the biochemical analysis of the trial medicine *Neeradaipu ennai*.

MATERIALS AND METHODS:

The trial drug *Neeradaipu ennai* is a Herbo-mineral formulation mentioned in the Siddha literature “*Athmarakshamrutham*”^[2]. The indications are *Neeradaipu, Kalladaipu, Sathaiadaipu* Ingredients of *Neeradaipu ennai* were tabulated in Table-1.

Table-1: Ingredients of *Neeradaipu ennai*

S.NO	BOTANICAL NAME	VERNACULAR NAME	QUANTITY
1	<i>Ricinus communis Linn</i>	<i>Vilakennai</i>	¼ padi (260 ml)
2	<i>Allium cepa Linn</i>	<i>Erulli</i>	1 palam (35gram)
3	<i>Sodium Biborate</i>	<i>Venkaram</i>	1 kalanji (5 gram)
4	<i>Terminalia Chebula Linn</i>	<i>Kadukai</i>	1 kalanji (5 gram)

SOURCES OF RAW DRUGS:

The required raw drugs for preparation of “*Neeradaipu ennai*” were purchased from well reputed country shop in Parrys Corner, Chennai-600 001, India.

IDENTIFICATION AND AUTHENTICATION OF DRUGS:

Identification and authentication of ingredients were done by Botanist, National Institute of Siddha, Chennai. The raw drugs were purified and then the study drug was prepared as SOP in Gunapadam laboratory, National Institution of Siddha.

PURIFICATION OF TRIAL DRUGS:^[3]

KADUKAI: The internal seeds of *kadukai* were removed, and the outer layer was used.

VENGARAM: *Venkaram* was fried until its water content got dried.

ERULLI: The outer skin was peeled and taken.

VILAKENNAI: The oil is taken in a dry, airtight container and buried in sand in such a position that half of the container was under the sand and the other half was exposed to sunlight for 2 days and was filtered using a cloth.

METHOD OF PREPARATION:^[2]

Step 1: Both *Vilakennai* (260 ml), *Erulli* (35 gram) were boiled until the colour of the oil becomes golden.

Step 2: Then purified *Vengaram* (5 gram) and purified *kadukai* powder (5 gram) were added to the oil and stirred.

BIOCHEMICAL ANALYSIS

Biochemical analysis was carried out in the department of Biochemistry, National Institute of Siddha.

1.Action of Heat:

A small amount of the sample was taken in a dry test tube and heated gently at first and then strongly. Formation of white fumes indicates presence of Carbonate. Formation of brown fumes indicates Nitrate.

2.Flame test:

A small amount of the sample was made into a paste with conc.HCL in a watch glass and introduced into nonluminous part of the Bunsen flame. Appearance of bluish green flame indicates presence of Copper.

3.Ash test:

A filter paper was soaked into mixture of the sample and cobalt nitrate solution and introduced into bunsen flame and ignited. Appearance of yellow colour flames indicates presence of sodium.

BIOCHEMICAL ANALYSIS OF ACID RADICALS

1.Test for sulphate:

2ml of the above prepared extract was added with 2ml of dilution HCL was added until the effervescence ceases. Then 2ml of barium chloride solution was added. Appearance of white precipitate indicates presence of sulphate.

2.Test for chloride:

2ml of the above prepared extract was added with dil.HNO₃ till the effervescence ceases. Then 2ml of was treated with silver nitrate solution. Formation of cloudy appearance indicates presence of chloride.

3.Test for phosphate:

2ml of extract was treated with 2 ml of ammonium molybdate solution and 2ml of conc. HNO₃. Formation of cloudy yellow appearance indicates presence of phosphate.

4.Test for nitrate:

1gm of the substance was heated with copper turnings and conc H₂SO₄ and viewed the test tube vertically down. Appearance of reddish brown gas indicates the presence of Nitrates.

5.Test for sulphide:

1gm of the substance was treated with 2ml of conc HCL. Formation of colourless gas with the smell of rotten egg indicates the presence of sulphides.

6. Test for fluoride and oxalate:

2ml of extract was added with 2ml of dil. acetic acid and 2ml of calcium chloride solution and heated. Formation of cloudy appearance indicates presence of fluoride and oxalate.

7. Test for nitrite:

3 drops of the extract was placed on the filter paper on that 2 drops of acetic acid and 2 drops of benzidine solution is placed. Appearance of reddish brown gas Indicate the presence of Nitrites.

8. Test for borate:

2 pinches of the substances was made into paste by using sulphuric acid and alcohol (95%) and introduced into blue flame. Appearance of Bluish green colour flame indicates presence of borate.

TEST FOR BASIC RADICALS:**1. Test for lead:**

2ml of the extract was added with 2ml of potassium iodide solution. Formation of yellow precipitate indicates the presence of lead.

2. Test for copper:

One pinch of substance is made into paste with conc HCL in a watch glass and introduced into nonluminous part of the flame. Appearance of blue colour flame indicates presence of copper.

3. Test for iron:

To the 2ml of extract add 2ml of Ammonium thiocyanate solution. Appearance of Mild red colour indicates presence of iron.

4. Test for zinc:

To 2ml of the extract sodium hydroxide solution was added in drops to excess. Formation of white precipitate indicates the presence of zinc.

5. Test for calcium:

2 ml of the extract was added with 2 ml of 4% ammonium oxalate solution. Formation of white precipitate indicates the presence of calcium.

6. Test for magnesium:

To 2 ml of extract sodium hydroxide solution was added in drops to excess. Formation of white precipitate indicates the presence of magnesium.

7. Test for ammonium:

To 2 ml of extract few ml of Nessler's reagent and excess of sodium hydroxide solution were added. Appearance of brown colour flame indicates presence of ammonium.

8. Test for potassium:

A pinch of substance was treated with 2 ml of sodium nitrate solution and then treated with 2 ml of cobalt nitrate in 30% glacial acetic acid. Formation of yellowish precipitate indicates the presence of potassium.

9. Test for sodium:

2 pinches of the substances was made into paste by using HCL and introduced into the blue flame of Bunsen burner. Appearance of yellow colour flame indicates presence of sodium.

10. Test for mercury:

2ml of the extract was treated with 2ml of sodium hydroxide solution. Formation of yellow precipitate indicates the presence of mercury.

11. Test for arsenic:

2ml of the extract was treated with 2ml of sodium hydroxide solution. Formation of brownish red precipitate indicates the presence of arsenic.

MISCELLANEOUS:

1. Test for starch:

2ml of extract was treated with weak iodine solution. Appearance of blue colour indicates presence of starch.

2. TEST FOR TANNIC ACID:

2ml of extract is treated with 2ml of ferric chloride solution. Formation of black precipitate indicates the presence of tannic acid.

3. TEST FOR THE ALKALOIDS:

2m of extract is treated with 2 ml of picric acid. Appearance of yellow colour indicates presence of alkaloids.

4. **TEST FOR AMINO ACID:** 2 drops of the extract is placed on a filter paper and dried well. Appearance of violet colour indicates presence of amino acids.

RESULTS OF BIOCHEMICAL ANALYSIS:

Acid, basic radical, and miscellaneous test analysis reports that the test drug *Neeradaipu ennai* contains sodium, iron and alkaloids.

DISSCUSSION:

The Biochemical analysis showed the presence of **Sodium, iron and alkaloids**. The presence of these compounds helps to reduce the symptoms of BPH by its activity. The alkaloids present in *Ricinus communis* shows anti-inflammatory effect^[4] which helps in reducing the symptoms.

CONCLUSION:

Neeradaipu ennai is a Siddha drug taken from a siddha literature *Athmarakshamrutham* useful in the treatment of *Prosthakola veekam*. The drug is screened for its bio chemical properties. Further, comprehensive pharmacological analysis is needed to evaluate its potency and the drug has its own potency to undergo further research.

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