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## BIOCHEMICAL ANALYSIS OF THE SIDDHA HERBAL FORMULATION -MURUNGAI NEI (Moringa Ghee)

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### Abstract

The Siddha system is a traditional holistic medicine. It mainly exists in South India and is regarded as one of India's oldest medical systems. This approach is built on ancient medicinal traditions, spiritual disciplines, alchemy, and mysticism. Medicinal plants have long been used to treat human diseases. Trial medication compositions for the treatment of male infertility were documented in Siddha's ancient literature. The investigation aimed to assess the biochemical analysis of the trial medicine Murungai Nei, which demonstrated the presence of carbonate, sulfates, and phosphate, as well as the augmentation of therapeutic activity in male infertility. As a result, I conclude that the existence of these substances is a treatment for male infertility.

**Keywords:** Siddha medicine, Biochemical analysis, Murungai Nei, Herbal Formulation, Male Infertility

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### Introduction

From the Dravidian culture, the Siddha system of medicine is one of the prestigious systems belonging to South India. According to the system, it is mainly focused on food as medicine (Kaya Karpa). Kaya Karpam is a unique treasure of literature in the Siddha system of medicine. Most Siddha medicines are herbal, Murungai Nei is made up of mainly *Moringa oleifera* flowers (Murungai Poo) [1]. In Siddha Literature it is mainly mentioned for Male Infertility. The preparation is narrated in the Siddha literature.

### Material and Methods

#### Ingredient of Murungai Nei (Moringa Ghee)

**Table No 1: Drug Description**

|   |   |           |
|---|---|-----------|
| 1. Murungai Poo ( <i>Moringa oleifera</i> , Lam.)   | - | 3.5 kg    |
| 2. Saranai Ver ( <i>Trianthema decandra</i> , Linn) | - | 35 g      |
| 3. Seviyum ( <i>Piper nigrum</i> L.)                | - | 35 g      |
| 4. Maavilangu Ver ( <i>Crataeva magna</i> Lour.de)  | - | 35 g      |
| 5. Thippili Moolam ( <i>Piper longum</i> L.)        | - | 35 g      |
| 6. Nei (Cow's ghee)                                 | - | 1.3 litre |

### Collection, Identification, And Authentication Of The Drug

The raw drugs required for the production of "MURUNGAI NEI" were bought from a reputable raw drug shop in Chennai. The herbal medicines were verified by the Assistant Professor of Medicinal Botany at Government Siddha Medical College. Following that, the raw drug was purified separately. The trial medication was then created in the Gunapadam laboratory at the Government Siddha Medical College

## Biochemical Analysis

Screening the drug of Murungai Nei was identifying the Biochemical properties present in the ingredients.

### 3. Methodology

#### Preparation of the Trial Drug:

Purified Murungai poo 3.5 kg is taken, 21.5 liters of water is added, and the mixture is reduced to 2.68 liters in an 8:1 ratio before adding 1.3 liters of ghee. In addition, all of the remaining powdered components (each 35 grams) are formed into a semisolid consistency by combining with warm water, and this mixture is added and heated. When it reaches the desired consistency, it is removed from the heat and filtered. It was kept in a glass jar.

Dose: 6 grams (in melted form), twice a day for 48 days.

#### 4. Analytical Investigation:

##### 4.1 Tests for Specific Acid Radical:

###### 1. Test for Carbonates

To 1 ml of the test solution about 1 ml of concentration (conc.) HCL was added. The formation of brisk effervescence indicates the presence of carbonates

###### 2. Test for Chlorides

To 2 ml of test solution, about 1 ml of silver nitrate solution was added. The appearance of a White precipitate indicates the presence of chlorides

###### 3. Test for Sulfates

To 1 ml of the test sample add diluted H<sub>2</sub>SO<sub>4</sub> till effervescence ceases by this about 1 ml of barium chloride solution was added. The appearance of a white precipitate indicates the presence of sulfates

###### 4. Test for Sulfides

To 1 ml of the test sample about 2 ml of HCL was added with slight warming the mixture the formation of colorless gas with the smell of rotten egg indicates the presence of sulfides.

###### 5. Test for Phosphates

To 2 ml of test solution treated with 2 ml of ammonium molybdate solution followed by the addition of 2ml of concentrated nitric acid the formation of yellow precipitate Indicates the presence of phosphates

###### 6. Test for Fluoride and Oxalate

To 2 ml of the test solution about 2 ml of diluted acetic acid and 2ml of calcium chloride solution were added The formation of a white precipitate Indicates the presence of Fluoride/ Oxalate

###### 7. Test for Borates

To 2ml of the test solution was added with sulphuric acid and 95% alcohol followed by exposure to flame Appearance of green flame Indicates the presence of Borates

###### 8. Test for Nitrates

0.5 ml of test solution heated with copper turning followed by the addition of sulphuric acid The appearance of reddish-brown gas Indicates the presence of Nitrates

##### 4.2 Tests for Specific Basic Radical

###### 1. Test for Lead

1 ml of the test solution added with 2 ml of potassium chromate solution. The formation of a yellow precipitate indicates the presence of lead.

###### 2. Test for Arsenic

1 ml of the test solution added with 2 ml of 10% (2N) sodium hydroxide (NaOH) solution. The formation of a brownish-red precipitate indicates the presence of Arsenic

###### 3. Test for Mercury

1 ml of the test solution added with 2 ml of 10% (2N) sodium hydroxide (NaOH) solution. The formation of a yellow precipitate indicates the presence of mercury.

#### 4. Test for Copper

1 ml of the test solution added with 1 ml of Ammonium hydroxide (NH<sub>4</sub>OH) solution Formation of blue precipitate indicates the presence of copper.

#### 5. Test for Ferric

To 1 ml of test solution, about 2 ml of potassium ferrocyanide solution was added Formation of blue precipitate indicates the presence of ferric

#### 6. Test for Ferrous

To 1 ml of test solution, about 1 ml of potassium ferric cyanide solution was added. The formation of a blue precipitate indicates the presence of ferrous.

#### 7. Test for Zinc

1 ml of the test solution added with 2 ml of sodium hydroxide (NaOH) dropwise until indication appears. The formation of a white precipitate indicates the presence of Zinc

#### 8. Test for Silver

1 ml of the test solution was added with 1 ml of conc. HCL followed by the appearance of a curdy white precipitate. Boil the precipitate with water. It does not dissolve. Add NH<sub>4</sub>OH solution in it and add 1 ml dilute HNO<sub>3</sub>. The formation of a curdy white precipitate indicates the presence of silver

#### 9. Test for Magnesium

1 ml of the test solution added with 2 ml of sodium hydroxide (NaOH) dropwise until indication appears. The formation of white precipitate indicates the presence of Magnesium

### 5. Results of Biochemical Analysis

Acid and basic radical analysis report that the test drug MN contains carbonates, sulfates, and phosphate in acid radicals and lead in basic radicals. The observed results of acid and basic radical analysis are tabulated in Table 2

Table:2

| Test for Acid Radicals        |                              |
|-------------------------------|------------------------------|
| Specific Radical              | Test Report                  |
| Test for carbonates           | Positive- Indicates Presence |
| Test for chlorides            | Negative - Indicates Absence |
| Test for sulfates             | Positive- Indicates Presence |
| Test for sulphides            | Negative - Indicates Absence |
| Test for phosphates           | Positive- Indicates Presence |
| Test for Fluoride and Oxalate | Negative - Indicates Absence |
| Test for Borates              | Negative - Indicates Absence |
| Test for Nitrates             | Negative - Indicates Absence |
| Test For Basic Radicals       |                              |
| Specific Radical              | Test Report                  |
| Test for Lead                 | Positive- Indicates Presence |
| Test for Arsenic              | Negative - Indicates Absence |
| Test for Mercury              | Negative - Indicates Absence |
| Test for Copper               | Negative - Indicates Absence |
| Test for Ferric               | Negative - Indicates Absence |
| Test for Ferrous              | Negative - Indicates Absence |

|                    |                              |
|--------------------|------------------------------|
| Test for Zinc      | Negative - Indicates Absence |
| Test for Silver    | Negative - Indicates Absence |
| Test for Magnesium | Negative - Indicates Absence |

## 6. Discussion

The Biochemical analysis of the trial drug Murungai Nei contains Carbonates, Sulfate, and Phosphate. In various parts of the human body, PH and acid balance are regulated by the carbonate, as bicarbonate Ions. Sulfate is required for cell matrix synthesis and for the maintenance of cell membranes.[2].Phosphate is responsible for the mineralization of the bony matrix. Phosphate is an important component of the lipid bilayer of cell membranes, DNA, RNA, and proteins[3]. Mode of action of the trial drug Murungai Nei which brings about Aphrodisiac and Spermatogenic activity in the body. This may be due to the presence of Sulfate, Carbonate, Phosphate, and Lead in it.

## 7. Conclusion

Murungai Nei is a Siddha Drug taken from Siddha Literature used in the treatment of Male infertility. The drug is screened for its biochemical 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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## 10. Inform Consent

It is not applicable.

## 11. Ethical Approval

All the guidelines provided by the ethical committee of the Government Siddha Medical College, Arumbakkam, Chennai were followed.

## 12. Conflict of Interest

The authors don't have any conflict of interest.

## 13. Author Contribution

Conception and the study were organized by the corresponding Author, and guided by the co-authors.

## 14. Reference

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