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Research article

# Biochemical Analysis of Siddha Polyherbal Drug *Siru Vilvathi Elagam*

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## ABSTRACT

Background :

Siddha system of medicine is one among the ancient medical science which is propounded and practiced by eminent spiritual scientists called "*Siddhars*". More than 2 billion people around the world are suffering from anemia. It is widespread health problem ,particularly in developing counties. siddha system deals with different types of diseases, Among varies types of diseases "*Mannun Veluppu Noi*"(Iron Deficiency Anemia) causes serious health problem in many developing countries particularly in pediatric age group. *Siru Vilvathi Elagam* is a polyherbal drug which is used to treat "*Mannun Veluppu Noi*"(Iron Deficiency Anemia).

Objectives :

The objective of this study was to evaluate the biochemical analysis of the drug -*Siru Vilvathi Elagam.*

Methods:

Biochemical analysis of *Siru Vilvathi Elagam* is obtained by extraction method(i.e) Drug were dissolved in distilled water and allowed to cool and filtered ,this filtered fluid is taken for analysis.

Result :

Biochemical analysis of the *Siru Vilvathi Elagam* contains calcium, sulphate , ferrous iron, unsaturated compound & amino acid.

Conclusion :

From the above results obtained from biochemical analysis of *Siru Vilvathi Elagam*, our finding concluded that the drug *Siru Vilvathi Elagam* will be effective in treating the disease *"Mannun Veluppu Noi"*(Iron Deficiency Anemia).

**Keywords:**

*Mannun Veluppu Noi*, Iron Deficiency Anemia, *Siru Vilvathi Elagam*, Bio-chemical Analysis.

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## INTRODUCTION

The Universe is formed by 5 basic elements namely, *Maan, Neer, Theyu, Vayu, Agayam* which are called *panchapootha*, and every living organism is formed of it in definite proportion. Anaemia is defined as a reduction of the haemoglobin concentration or red blood cell [RBC] volume below the range of values occurring in healthy persons. Which vary by age,sex, altitude, and pregnancy status.Anemia is a global public health problem affecting both developing and developed countries at all ages. Anaemia is often multifactorial and is not an independent phenomenon. Even though our country is developing one, even now some of our people lie below the poverty line and under socio-economic status. They have been suffering from various diseases mainly due to malnutrition, the commonest being Iron Deficiency Anemia. Iron Deficiency Anemia is a common problem in pediatric age group. The common causes of Iron Deficiency Anemia in India are poverty, socio-economic pattern, malnutrition, untreated illness, Hookworm Infestation etc. The most common occurrence of *Mannun Veluppu Noi* is among the preschool and school going children .On the basis of our siddha text the disease *Mannun Veluppu Noi* in Chidambaram Thanu Pillai – *Kuzhanthai Noigal* Part -1 is correlated with Iron Deficiency Anemia .The drug which was selected from the siddha literature (*Anuboga Vaithiya Navaneetham* Part 8).

## MATERIALS AND METHODS

Table 1 : Part 1 & Part 2 are the ingredients of the drug - *SiruVilvathiElagam* Part 1

| Tamil Name | Botanical Name | Part Used | Family |
|---|---|---|---|
| *Vilvam Ver Pattai* | Aegle marmelos | Root | Rutaceae |
| *Thanneer* | Water | | |
| *Vellam* | Jaggery | | |
| *Elumichai Pazham* | Juice Of Citrus Limon | *Fruit* | |
| *Inji Charu* | Juice Of Zingeber officinales | *Rhizome* | |
| *Elarisi* | Elattaria caramomum | Seed | Zingeberace-ae |
| *Lavangam* | Syzygium aromati-cum | Flower Bud | Myrtaceae |
| *Sukku* | Zingeber officinales | Dried Ginger | Zingeberace-ae |
| *Milagu* | Piper nigram | Seed | Piperaceae |
| *ArisiThippili* | Piper nongum | Fruit | Piperaceae |
| *LavangaPathiri* | Cinnamomum tamala | Leaf | Lauraceae |
| *Sirunagapoo* | Mesuana gassarium | Flower Bud | Lauraceae |
| *ThalisaPathiri* | Abies spectabilis | Leaf | Pinaceae |
| *KothamalliVithai* | Coriandrum sativum | Seed | Apiaceae |
| *Nellimulli* | Phyllanthus emblica | Dried Fruit | Euphorbia-ceae |
| *Jathikkai* | Myristica fragrans | Fruit | Myristicaceae |
| *ParuthiVithai* | Gossypium herbace- | Seed | Malvaceae |
| *Vettiver* | Vettiveria zizanioides | Root | Poaceae |
| *VilamichamVer* | Coleus vettiveroides | Root | Lamiaceae |
| *Nerpori* | Oryza Sativa | Roasted Seed | Poaceae |
| *Thaen* | Honey | | |

### *Collection, Identification and Authentication of the Drug:*

The required raw drugs were purchased from a well reputed country shop. They were Government Siddha Medical Botanist of Government Siddha Medical College and Hospital, Palayamkottai.

**Purification of the Drug:**

All the ingredients of this herbal formulation were purified according to the proper produce methods described in Siddha Classical Literature.

### *Preparation of the Drug:*

- All these drugs are purified as per classical siddha texts.
- Make the Decoction of *vilvaver pattai* and then mix the juices present in part 1.
- Add jaggery and heat it in low flame until it becomes *paagupatham*
- Then add the powdered ingredients present in part 2 and then add honey
- Allow it to cool and store it in air tight container .

Make the decoction of *Vilvaver pattai* and mix the juices and Jaggery, heat it in low flame until it becomes paagupatham, then add the raw drugs and honey then allow it to cool.

**Biochemical analysis:**

Screening the drug *Siru Vilvathi Elagam* to identify the Biochemical properties.

**Chemicals and drugs:**

The chemicals used in this study were of analytical grade obtained from Department of Biochemistry, Government Siddha Medical College and Hospital, Palayamkottai.

### *METHODOLOGY*

**Preparation of the extract:**

5gms 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 is making up to 100ml with distilled water. This fluid is taken for analysis.

*Table 2. Qualitative biochemical analysis of Siru Vilvathi Elagam*

| S.NO | EXPERIMENT | OBSERVATION | INFERENCE |
|---|---|---|---|
| 1. | **TEST FOR CALCIUM**<br>2ml of the above prepared extract is taken in a clean test tube. To this add 2ml of 4% Ammonium oxalate solution | A white precipitate is formed | **Indicates the presence of Calcium** |
| 2. | **TEST FOR SULPHATE**<br>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**<br>The extract is treated with silver nitrate solution | No white precipitate is formed | Absence of Chloride |
| 4. | **TEST FOR CARBONATE**<br>The substance is treated with concentrated Hcl. | No brisk effervescence is formed | Absence of Carbonate |
| 5. | **TEST FOR STARCH**<br>The extract is added with weak iodine solution | No blue color is formed | Absence of Starch |
| 6. | **TEST FOR FERRIC IRON**<br>The extract is acidified with Glacial acetic acid and potassium Ferro cyanide. | No blue color is formed | Absence of ferric Iron |
| 7. | **TEST FOR FERROUS IRON**<br>The extract is treated with concentrated Nitric acid and Ammonium thiocyanate solution | Blood red color is formed | **Indicates the presence of Ferrous Iron** |
| 8. | **TEST FOR PHOSPHATE**<br>The extract is treated with Ammonium Molybdate and concentrated nitric acid | No yellow precipitate is formed | Absence of Phosphate |
| 9. | **TEST FOR ALBUMIN**<br>The extract is treated with Esbach's reagent | No yellow precipitate is formed | Absence of Albumin |
| 10. | **TEST FOR TANNIC ACID**<br>The extract is treated with ferric chloride. | No blue black precipitate is formed | Absence of Tannic acid |
| 11. | **TEST FOR UNSATURATION**<br>Potassium permanganate solution is added to the extract | It gets decolorized | **Indicates the Presence of Unsaturated compound** |
| 12. | **TEST FOR THE REDUCING SUGAR**<br>5ml of 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. | No Color change occurs | Absence of Reducing sugar |
| 13. | **TEST FOR AMINO ACID**<br>One or two drops of the extract is placed on a filter paper and dried well. After drying, 1% Ninhydrin is sprayed over the same and dried it well. | Violet color is formed | **Indicates the presence of Amino acid** |
| 14. | **TEST FOR ZINC**<br>The extract is treated with Potassium Ferro cyanide. | No white precipitate is formed | Absence of Zinc |

## RESULTS AND DISCUSSION

The Bio chemical analysis of the trial drug *Siru Vilvathi Elagam* was tabulated above in table 2.
The trail drug "***Siru Vilvathi Elagam"*** contains

1. Calcium
2. Sulphate
3. Ferrous iron,
4. Unsaturated compound
5. Amino acid.

The mode of action of the trial drug *Siru Vilvathi Elagam* which brings about the therapeutic action in body process, may be due to the presence of calcium Sulphate, Ferrous iron, unsaturated compound, Amino acid in it.

## CONCLUSION

*Siru Vilvathi Elagam* is a Siddha Drug taken from a Siddha literature used in the treatment of Iron Deficiency Anemia. 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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## CONFLICTS OF INTEREST

None declared.

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