



## PRELIMINARY CHEMICAL ANALYSIS OF A SIDDHA HERBO MINERAL FORMULATION THATHU VIRUTHI KULIGAI (TVK)

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### ABSTRACT

Premature ejaculation (PE)<sup>1</sup> is likely the most common sexual dysfunction in men, with a worldwide prevalence of approximately 30%. The prevalence of PE appears to vary across socio-cultural and geographic populations. Premature ejaculation is defined as ejaculation of semen during sexual intercourse before (or) immediately after penetration. Premature ejaculation, the most common form of sexual dysfunction in men, often is due to performance anxiety during sex. Intercourse after long intervals may also result in premature ejaculation. In some cases, premature and inhibited ejaculations are caused by psychological factors, including a strict religious background that causes the person to view sex as sinful, a lack of attraction for a partner and past traumatic events. In addition, certain medication, particularly those used to treat mood disorders, may cause problems with ejaculation. Aphrodisiac drug is stimulating sexual desire. Aphrodisiac can be categorized according to their mode of action into three groups. Substances that increase libido (i.e. sexual desire arousal), Substances that increase sexual potency (i.e. effectiveness of erection), Substances that increase sexual pleasure. In siddha system of medicine many Aphrodisiac activity drugs are available. Such one of the Herbo-mineral preparation named *Thathu Viruthi Kuligai (TVK)*, which contains *Boomi Charkarai Kizhangu, Poonaikali viththu Parupu, Aadutheendapalai samoolam & Cow's milk*. The plant materials which are used for the preparations of *TVK* are having aphrodisiac, spermatogenic activities. In this preliminary study of *TVK* was subjected to standardize using modern techniques by creating chemical analysis which can be used as a standard reference for checking the quality of the test drug *TVK*.

### Keywords

Siddha, *Thathu Viruthi kuligai*, Aphrodisiac, Premature Ejaculation

## INTRODUCTION

Premature Ejaculation (PE) is likely the most common sexual dysfunction in men, with a worldwide prevalence of approximately 30%. PE is defined as ejaculation of semen during sexual intercourse before (or) immediately after penetration. PE caused by psychological factors, including a strict religious background that causes the person to view sex a sinful, a lack of attraction for a partner and past traumatic events<sup>1</sup>. Herbo-Mineral based remedies have always been an integral part of traditional medicine throughout the world. In ancient Indian system of medicine, a number of drugs, from indigenous plant source have been described for PE, sexual dysfunction. In our Siddha system the medicine, Premature ejaculation may be compared to *Thuritha Vinthozhuku*. In that aspect there is a preparation in the literature of "The Pharmacopoeia of Siddha Research Medicines", "*Thathu Viruthi Kuligai*"<sup>2</sup> which is indicated for premature ejaculation. *Thathu Viruthi Kuligai* is one of the Herbo-Mineral medicine having Aphrodisiac, Spermatogenesis and Anxiolytic activities. In our present discussion we have highlighted the Chemical Analysis of *TVK*.

## MATERIALS AND METHODS

### *Preparation of TVK*

#### *Ingredients and Quantities*<sup>2</sup>

- a. *Boomi charkarai kizhangu chooranam* (*Maerua oblongifolia*, Forsk) - 20gm
- b. *Poonaikali viththu parupu chooranam* (*Mucuna pruriens*, DC) - 20gm
- c. *Aadutheendapalai samoola chooranam* (*Aristolochia bractiata*, Lam) - 20gm
- d. *Cow's milk* (Milk of *Bos taurus*) - Q.S .

#### *Purification of Raw Drugs*<sup>3,4</sup>

- a. *Boomi Charkarai Kizhangu*- The raw drug is washed well. The outer skin of the tuber and vascular cylinder are removed, wiped and dried off.

- b. *Poonaikali Viththu Parupu*- The hard shell is removed and boiled in cow's milk and dried off.
- c. *Aadutheendapalai Samoolam*- The dust, unwanted dried leaves are removed and washed with water to removed soil and dried in under shade.
- d. *Cow's Milk*- The cow's udder is washed with water after calf feeding and milk is filtered with clean cloth for removing froth

### ***Preparation Process<sup>2</sup>***

First purified three ingredients are powdered well individually and filtered with clean white cloth (*Vasthirakayam*). Then they are mixed thoroughly and well rubbed in a *kalvam* with COW'S MILK for three days and then made into pills of 5 to 10 grains each (or about small *chundaikai* size). These are dried in the shade and bottled up and then labelled.

### **Information about the ingredients**

#### **1. *Aadutheendapalai Samoolam*<sup>3,5,7,8,9</sup>**

Latin Name	- Aristolochia bracteata, Lam
Tamil Name	- Aadutheendapalai
English Name	- Birthwort, Worm-killer
Sanskrit Name	- Pattra-banga, Dhumra-patra
Hindi Name	- Kiramer
Family	- Aristolochiaceae

### **Chemical Constituents**

Volatile substance an alkaloid and salts especially potassium, chloride

### **Actions**

Alterative, Emmenagogue, Anthelmintic, Anti-periodic, Purgative

## Medicinal Uses

Powdered dry root in doses of 1-2drachms will increase the contractions of uterus during labour and is used in Sind as substitute for ergot.

### 1. *Poonaikali Viththu Parupu*<sup>3, 6, 7,8, 9</sup>

Latin Name	- Mucuna pruriens, DC
Tamil Name	- Poonaikali
English Name	- Cowitch Plant (or) Cow-hage
Sanskrit Name	- Atmagupta, Vanari, Kapikachchohu
Hindi Name	- Kavach, Kiwach
Family	- Fabaceae

## Chemical constituents

Resin, Tannins, Fat and trace of Manganese, Free Fatty acid, Glycoside, Albumin

## Action

Nervine tonic, Aphrodisiac, Astringent, Anthelmintic

## Medicinal Uses

Seeds are prescribed in the form of powder in doses of 20-40 grains in Leucorrhoea, Spermatorrhoea etc, and in cases requiring an Aphrodisiac action.

### 2. *Boomi Charkarai Kizhangu*<sup>3,6,8,9</sup>

Latin Name	- Maerua oblongifolia, Forsk
Tamil Name	- Boomi Charkarai Kizhangu, Mulmurandai
English Name	- Earth Sugar Root, Necklace Berried caper
Sanskrit Name	- Dhavalkand
Hindi Name	- Hemakand
Family	- Capparaceae

## Chemical Constituents

Starch

## Action

Alterative, Tonic, Stimulant

## Medicinal Uses

Traditionally the fleshy roots of this plant are used as Alternative, Tonic and Stimulant.

### 4. *Cow's Milk* <sup>4,9</sup>

Zoological Name (Cow)	- Bos taurus
Tamil Name	- Pal
English Name	- Milk
Sanskrit Name	- Dugdha, Ksheera
Hindi Name	- Gudh

## Chemical Constituents

Proteins', Calcium, Potassium, Vit-B2, Vit-B12, Vit - A

## Action

Nervine tonic

## Medicinal Uses

Which are essential for the growth and development of the human body. Vit-B12 helps in the full development of nerve cells and used as a Nerving-Tonic.

## QUALITATIVE ANALYSIS (Basic & Acidic Radical Studies)

### Preparation of the Extract <sup>10, 11</sup>

5 gms of the drug TVK was weighed accurately and placed in a 250 ml 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 <sup>10</sup>.

S.NO	EXPERIMENT (PROCEDURE)	OBSERVATION
1.	<p><b>TEST FOR CALCIUM:</b></p> <p>2ml of the above prepared extract is taken in a clean test tube. To this add 2ml of 4% Ammonium oxalate solution.</p>	Formation of white colour precipitate
2.	<p><b>TEST FOR SULPHATE:</b></p> <p>2ml of the extract is added to 5% barium chloride solution.</p>	Formation of white colour precipitate
3.	<p><b>TEST FOR CHLORIDE:</b></p> <p>The extract is treated with silver nitrate solution.</p>	Formation of white colour precipitate
4.	<p><b>TEST FOR CARBONATE:</b></p> <p>The substance is treated with concentrated HCL</p>	Formation of brisk effervescences
5.	<p><b>TEST FOR STARCH:</b></p> <p>The extract is added with weak iodine solution.</p>	Appearance of blue colour
6.	<p><b>TEST FOR IRON FERRIC:</b></p> <p>The extract is acidified with glacial acetic acid and potassium Ferro cyanide.</p>	Appearance of blue colour
7.	<p><b>TEST FOR IRON FERROUS:</b></p> <p>The extract is treated with concentrated Nitric acid and ammonium trio cyanate solution.</p>	Appearance of blood red colour

8.	<p><b>TEST FOR PHOSPHATE:</b></p> <p>The extract is treated with ammonium Molybdate and concentrated nitric acid.</p>	Formation of yellow colour precipitate
9.	<p><b>TEST FOR ALBUMIN:</b></p> <p>The extract is treated with Esbachs reagent.</p>	Formation of yellow colour precipitate
10.	<p><b>TEST FOR TANNIC ACID:</b></p> <p>The extract is treated with ferric chloride.</p>	Formation of blue black colour precipitate
11.	<p><b>TEST FOR UNSATURATION:</b></p> <p>Potassium permanganate solution is added to the extract</p>	Appearance of decolourisation
12.	<p><b>TEST FOR THE REDUCING SUGAR:</b></p> <p>5ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 mins and add 8-10 drops of the extract and again boil it for 2 mins.</p>	Appearance of colour changes
13.	<p><b>TEST FOR AMINO ACID:</b></p> <p>One or two drops of the extract is placed on a filter paper and dried it well. After drying, 1% Ninhydrin is sprayed over the same and dried it well.</p>	Appearance of Violet colour
14.	<p><b>TEST FOR ZINC:</b></p> <p>The extract is treated with potassium Ferro cyanide</p>	Formation of white colour precipitate

## RESULTS AND DISCUSSION

S.NO	PARAMETER	OBSERVATION	INFERENCE
1.	TEST FOR CALCIUM	A white precipitate is formed	+
2.	TEST FOR SULPHATE	-	-
3.	TEST FOR CHLORIDE	A white precipitate is formed	+
4.	TEST FOR CARBONATE	-	-
5.	TEST FOR STARCH	Blue colour is formed	+
6.	TEST FOR IRON FERRIC	-	-
7.	TEST FOR IRON FERROUS	Blood red colour is formed	+
8.	TEST FOR PHOSPHATE	Yellow colour precipitate is formed	+
9.	TEST FOR ALBUMIN	Yellow colour precipitate is formed	+
10.	TEST FOR TANNIC ACID	-	-
11.	TEST FOR UNSATURATION	It gets decolourised	+
12.	TEST FOR THE REDUCING SUGAR	Colour changes occurs	+
13.	TEST FOR AMINO ACID	Violet colour is formed	+
14.	TEST FOR ZINC	-	-

+ Presence

- Absence

TVK is having presence of Ferrous Iron, Starch, Albumin, Amino acid, Phosphate, Calcium, Chloride, Unsaturation and Reducing Sugar.

\* Ferrous Iron is readily absorbed in small intestine and used in synthesis of Haemoglobin, which in turn increases the oxygen carrying capacity of the blood. Thus it is involved in increasing of stamina of the body. Starch is digested into glucose and gives energy. Albumin is a protein. Which is involved in tissue building, tissue repair and albumin is also involved in transport of steroid hormones in blood circulation. Amino acid is involved in protein synthesis and muscle building and increase stamina. Phosphate is buffer and is involved in acid-base mechanism which is friendly to the stomach mucosa.

\* Calcium is involved in muscle contraction. Thus it reduces fatigue. Calcium ions have an apparently paradoxical effect on sperm motility. In the epididymis, calcium ions stimulate immature sperm, whereas, in ejaculated semen, calcium ions inhibit sperm motility. Maturation processes change the response of sperm to calcium ions. Calcium binding substances and Calcium transport inhibitors are secreted by male accessory sexual organs and mixed with sperm during ejaculation. In the female genital tract sperm acquire full capacity of fertilize the ovum. Calcium binding substances and Calcium transport inhibitors are removed during the process known as capacitating. Finally, Calcium ions trigger the acrosome reaction and facilitate sperm penetration into the ovum<sup>10,11</sup>.

## CONCLUSION

TVK is having the presence of Ferrous Iron, Starch, Albumin, Amino acid, Phosphate, Calcium, Chloride, Unsaturation and Reducing Sugar. Their clinical relevance and their probable role and extended roles in promoting Aphrodisiac and spermatogenic activities and controlling premature ejaculation are also discussed. This is only preliminary a study and further studies are to be carried out in future to explore the therapeutic efficacy of the TVK.

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