



Biochemical analysis of Siddha Kaayakarpam drug Naaval Pazha Karpam

Jesima Barveen H¹, Kavitha S², Poongodi Kanthimathi A.S³

^{1*} PG Scholar, Department of Siddhar Yoga Maruthuvam, ² PG Scholar, Department of Varma Maruthuvam,

³ Lecturer, Department of Sirappu maruthuvam, .Government Siddha Medical College and Hospital, Palayamkottai.

ABSTRACT

Kaya karpam or *Kayakalpam* is one of the unique special therapeutic divisions in Siddha System of medicine Advocate specially for Rejuvenation, decreasing morbidity and increasing lifespan. “Kayam means body and Karpam means strong as stone”. *Kaya karpam* provides both mental and physical wellness. I have choosen *Naavalpazha karpam* from *theraiyar kaapiyam*, for the management of Diabetes mellitus.

Diabetes mellitus is one of the major lifestyle disorder and non-communicable disease occurs mostly sedentary lifestyle. Polyuria, polyphagia, polydipsia, Asthenia numbness, moodechanges, Rapid weight loss, irritability and difficulty in concentration are the major symptoms seen in patients with diabetes mellitus. the classical texts “*Noinadal, Noi MudhalNadal Part11* and *Yugi Vaidhaya Chindhamani 800*” clearly defines the symptoms of *Neerizhivu* can be correlated with *Diabetes mellitus*

The aim of the study was to evaluate the Biochemical analysis of the trial drug *Naavalpazha karpam* and it indicates the presence of calcium, Sulphate, starch, ferrous iron, tannic acid, unsaturation compound, Reducing sugar, aminoacid which revealed the enhancement of therapeutic action in diabetes mellitus.

Keywords:

Neerizhivu, Diabetes mellitus, Biochemical Analysis, Siddha Karpa Medicine, Naval Pazha Karpam.

Address for correspondence:

Jesima Barveen H
PG Scholar,

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INTRODUCTION

NEERIZHIVU-SIDDHA CONCEPT:

The clinical symptoms The classical disease *Neer-izhivu* is many school of thoughts. *Theraiyar* in his ‘*Theran Karisal*’ has classified the disease of the urinary system in to two major categories of ‘*neer perukkal noigal*’*neer arugal noigal*’. Any pathology which gives rise to increased urination in quantity or frequency irrespective of the varied causes is included under *neer perukkal noigal or neerizhivu noigal or mega neer or madhumegam*. Premonitory symptoms of *NEERIZHIVU* include polyuria, polyphagia, polydipsia, tastelessness, general debility, mood-changes and irritability, increased body heat, numbness, Asthenia, nausea, etc. Based on the involvement of the three dhoshas in the pathogenesis, *NEERIZHIVU* is categorized into 20 types based on *Vali, Azhal, and Iyam*. texts *Noinadal, NoimuthalNadal partII, and Yugi vaidhaya chindhamani 800*’ clearly defines the *NEERIZHIVU*.

TYPES:

As per AMERICAN DIABETES ASSOCIATION, 2007 four types of DM were identified,

1. Type 1 DM.
2. Type 2 DM
3. GESTATIONAL DM .
4. OTHER SPECIFIC TYPE OF DM.

1. TYPE 1 DM:

This type constitutes 10% cases of DM. It was previously termed as Juvenile Onset Diabetes Mellitus [KJOD] due to its occurrence in younger age and was called Insulin Dependent DM [IDDM]. Because it was known that these patients have absolute requirement for Insulin replace as treatment. Based on underlying etiology, type 1 DM is further divided into 2 subtypes.

SUBTYPE 1A [Immune mediated] DM characterized by auto-immune destruction of beta cells which usually leads to insulin deficiency.

SUBTYPE 1B [Idiopathic] DM characterized by insulin deficiency which tendency to develop ketosis but these are negative for auto immune markers.

2. TYPE 2 DM:

This type comprises about 80% cases of DM. It was previously called Maturity onset Diabetes [MOD] or Non Insulin Dependent DM [NIDDM]. It results due to ineffective use of insulin.

It is now known that it is also occurs in obese, adolescent children; hence the term MOD for it is inappropriate. Moreover, many type 2DM patients also require Insulin therapy to control hyperglycemia or to prevent ketosis and thus are not truly NID contrary to its former nomenclature.

3. GESTATIONAL DM:

About 4% pregnant women develop DM due to metabolic changes during pregnancy. Although they revert back to normal glycemia after delivery, these women are prone to develop DM later in their life.

4. OTHER SPECIFIC TYPES OF DM:

- Besides the 2 main types , about 10% cases of DM have a known specific etiologic listed below
- Genetic defect beta cell function due to mutation in various enzymes eg, Hepatocyte nuclear transcription factor.
- Genetic defect in insulin action eg, Type A insulin resistance.
- Diseases of exocrine pancreas eg, Chronic Pancreatitis, Pancreatic tumours.
- Endocrinopathies eg, Acromegaly, Cushing’s syndrome, pheochromocytoma.
- Drug are Chemical induced eg, steroids, beta blockers.
- Infections eg, Congenital rubella, Cytomegalo virus.
- Uncommene forms of immune-mediated DM eg, Stiff man syndrome, Anti-insulin receptor antibodies.
- Other genetic syndromes eg, Down’s syndrome, Klinefelter’s syndrome

Table 1. Ingredients of Naaval pazha karpam

DRUG	BOTANICAL NAME	FAMILY	PART USED	QUANTITY
Naaval pazham	<i>Syzygium cumini</i>	Myrtaceae	Dried fruit	1 part

Table 2. Biochemical analysis of Naaval Pazha Karpam

EXPERIMENT	OBSERVATION	INFERENCE
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	A white precipitate is formed	Indicates the presence of calcium
TEST FOR SULPHATE 2ml of the extract is added to 5% Barium chloride solution.	A white precipitate is formed	Indicates the presence of sulphate
TEST FOR CHLORIDE The extract is treated with silver nitrate solution	No white precipitate is formed	Indicates the absence of chloride
TEST FOR CARBONATE The substance is treated with concentrated Hcl.	No brisk effervescence is formed	Absence of carbonate
TEST FOR STARCH The extract is added with weak iodine solution	Blue colour is formed	Indicates the presence of starch
TEST FOR FERRIC IRON The extract is acidified with Glacial acetic acid and potassium ferro cyanide.	No blue colour is formed	Absence of ferric iron
TEST FOR FERROUS IRON The extract is treated with concentrated Nitric acid and Ammonium thiocyanate solution	Blood red colour is formed	Indicates the presence of ferrous iron
TEST FOR PHOSPHATE The extract is treated with Ammonium Molybdate and concentrated nitric acid	No yellow precipitate is formed	Absence of phosphate
TEST FOR ALBUMIN The extract is treated with Esbach's reagent	No yellow precipitate is formed	Absence of albumin
TEST FOR TANNIC ACID The extract is treated with ferric chloride.	No blue black precipitate is formed	Indicates the presence of Tannic acid.
TEST FOR UNSATURATION Potassium permanganate solution is added to the extract	It gets decolourised	Indicates the presence of unsaturated compound
TEST FOR THE REDUCING SUGAR 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.	Colour changes occur	Indicates the presence of reducing sugar
TEST FOR AMINO ACID 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 colour is formed	Indicates the presence of Amino acid
TEST FOR ZINC The extract is treated with Potassium Ferro cyanide.	No white precipitate is formed	Absence of zinc

MATERIALS AND METHODS

Collection, Identification and Authentication of the Drug:

The required raw drugs were purchased from a well reputed country shop. They were identified and authenticated by Botanist of Government Siddha Medical College, 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 Medicine:

The purified raw drugs are coarsely powdered and mixed in of each equal quantity. The decoction is made out from the above mixture as per the method available in Siddha literatures.

Biochemical analysis:

Screening the drug *Naaval pazha karpam* to identify the Biochemical properties present in the ingredient.

Chemicals and drugs:

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

Methodology:

5 grams of the drug was weighed accurately and placed in a 250ml clean beaker. Then 50ml of distilled water added to it and dissolved well. Then it was boiled well for about 10 minutes. It was cooled and filtered in a 100ml volumetric flask and then it is made upto 100ml with distilled water. This fluid was taken for analysis.

RESULTS AND DISCUSSION

The biochemical analysis of the *Naaval Pazha karpam* is tabulated in above table 2. The drug contains Calcium, sulphate, starch, ferrous ion, tannic acid, unsaturated compound, reducing sugar, amino acid. Mode of action of the trial drug *Naaval Pazha karpam* which rejuvenate the human body cell and maintain the glucose in the body. May be due to the presence of calcium, Sulphate, chloride, and Amino acid, in it.

CONCLUSION

Naaval pazha karpam is a Siddha Drug taken from a Siddha theraiyar karpam literature used for the treatment of diabetes mellitus. The drug is screened for its bio chemical properties. Further, comprehensive pharmacological analysis are needed to evaluate its potency and the drug has its own potency to undergo further research

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