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Biochemical analysis of Siddha mono herbal drug Amukkara Podi (Amukkara Karpam)

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ABSTRACT

Siddhar Yogam or Siddhar Yoga Muraigal are the ancient methods that were advocated by the Siddhars in order to prevent the ailments occurring due to human aging. Also, these methods consisted of physical, mental, and even dietary practices, that must be practiced for a period of a mandala (48 days). The dietary practices, that were advocated by them are the 'Kaayakarpam' practices. These usually include the intake of a certain poly or monoherbal drug, for a stipulated span of time. They may either be the drug of choice for general body wellness, or for a specific disease. Considering Amukkara Podi (the powdered root of Withania Somnifera), it has several references as a Kaayakarpam[1] drug for general body wellness. As a special drug, it acts wonderfully towards weight loss for obese patients, when taken in with honey. Obesity[2] or being obese is a health disorder that is characterized by the presence of a BMI of more than 25. These patients tend to be overweight, have a lethargic attitude or a condition of tiredness towards work, and at later stages may suffer from knee, hip pains, etc. Obesity has also been considered to be an uprising health disorder of concern by WHO. The treatment generally includes rigorous exercise in order to lose bodyweight. In cases where obese individuals cannot lose weight through exercise, other options could be taken into consideration. One among them is the intake of Amukkara Podi with Honey. This paper reports the biochemical analysis of the drug, 'Amukkara Podi', which could be used as a forerunner for the usage of the drug against obesity.

Keywords: Amukkara, Obesity, Kaayakarpam.

1. INTRODUCTION

Obesity stands as one of the major non communicable diseases of concern right now, as it stands as the initiator of several other diseases such as Diabetes Mellitus, Stroke, Angina, Hypertension etc.

Statistics show that 8% of the total deaths in the world in the year 2017 were due to obesity and its allied conditions, which has shown an alarming increase from 4.5% in 1990^[3]. Globally, it could be said that 60 per 100,000 people died due to this disease.

WHO states that globally, 13% and 39% of the adults aged eighteen or higher were obese and overweight respectively in 2016 and that the number is on the rise.

Overweight and obesity are now regarded as two of the main disorders of concern by the developed countries. Not only the high income countries, but also the countries, that have very low income complain of the same. Since 1986, the number of persons affected has doubled. Obesity acts as the factor of great concern, as it may, at times, induce the onset of other diseases such as Diabetes Mellitus, Hypertension, cardiovascular diseases, Cerebro vascular diseases, Osteoarthritis, Sciatica etc. In some cases, one can notice that it can also form the basis for fatigue and difficulty in the performance of day to day activities.

2. MATERIALS AND METHODS:**INGREDIENT OF AMUKKARA PODI (AMUKKARA KARPAM)****TABLE No. 1: DRUG DESCRIPTION^[4]**

Sl. No.	DRUG	BOTANICAL NAME	FAMILY	PART USED	QUANTITY
1.	AMUKKARA	<i>Withania somnifera</i>	Solanaceae	Root	2-4 Gms twice a day

Source: Gunapadam Mudhar Paaham-mooligai vaguppu, Pg. No:30

Collection, Identification and Authentication of the Drug:

The required raw drug was collected from Salem, Tamilnadu, India. It was identified and authenticated by Botanist of Government Siddha Medical College, Palayamkottai.

Purification and Preparation of the Drug:

The ingredient of this herbal formulation was purified according to the proper methods described in Siddha Classical Literature Gunapadam Mudhar Paaham-mooligai vaguppu. The purification procedure included the separation of the roots from the plants, boiling in milk, drying the same and then grinding it to a fine powder. It is then stored in an air tight container in order to avoid air seeping in.

Biochemical analysis:

Biochemical Analysis involves the screening of the drug Amukkara Podi, in order to identify the Biochemical properties of the ingredient.

Chemicals and drugs:

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

3. METHODOLOGY**PREPARATION OF THE EXTRACT:**

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

4. QUALITATIVE ANALYSIS**TABLE NO. 2: INFERENCE FROM QUALITATIVE ANALYSIS OF THE DRUG, 'AMUKKARA PODI'**

S.No	EXPERIMENT	OBSERVATION	INFERENCE
01	TEST FOR CALCIUM 2ml of the above prepared extract is taken in a clean test tube. To this 2ml of 4% Ammonium oxalate solution is added.	No white precipitate is formed.	Indicates the absence of calcium.
02	TEST FOR SULPHATE 2ml of the extract is added to 5% Barium chloride solution.	A white precipitate is formed.	Indicates the presence of Sulphate.
03	TEST FOR CHLORIDE The extract is treated with silver nitrate solution.	A white precipitate is formed.	Presence of Chloride
04	TEST FOR CARBONATE The substance is treated with concentrated Hydrochloric Acid.	No brisk effervescence is formed.	Absence of Carbonate.
05	TEST FOR STARCH The extract is treated with weak iodine solution.	Blue colour is formed.	Presence of starch.
06	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.
07	TEST FOR FERROUS IRON The extract is treated with concentrated Nitric acid and Ammonium thiocyanate solution.	No Blood red colour is formed	Absence of Ferrous iron.

08	TEST FOR PHOSPHATE The extract is treated with Ammonium Molybdate and concentrated nitric acid.	No yellow precipitate is formed.	Absence of Phosphate.
09	TEST FOR ALBUMIN The extract is treated with Esbach's reagent.	No yellow precipitate is formed	Absence of Albumin
10	TEST FOR TANNIC ACID The extract is treated with ferric chloride.	No blue black precipitate is formed.	Absence of Tannic acid.
11	TEST FOR UNSATURATION Potassium permanganate solution is added to the extract.	It gets decolourised	Indicates the presence of unsaturated compound.
12	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 then 8-10 drops of the extract are added. It is again boiled for 2 minutes.	No colour changes occur.	Absence of reducing sugar.
13	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 it is dried well.	Violet Colour is formed.	Indicates the Presence of Aminoacids.
14	TEST FOR ZINC The extract is treated with Potassium Ferro cyanide.	No white precipitate is formed.	Absence of Zinc.

Source: Report of biochemical lab.

The observations made from Table No. 2, give a clear understanding that the Drug '*Amukkara Podi*' has Sulphides, Chlorides, Starch, Unsaturated Compounds and Amino acids in it. Due to a chemical constitution that contains proteins in it, it could roughly be admitted that *Amukkara Podi* helps in providing the protein supplement needed, when a person aims at losing weight in a healthy manner, either through diet or through exercise.

5. CONCLUSION

The biochemical analysis of the drug, '*Amukkara Podi*', which has been purified by boiling in milk has been reported through this paper. Also, a bird's eye view has been provided on the usage of the same for treatment of Obesity.

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