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Research article



Vasanthan T<sup>1</sup>, Rajeswari M<sup>2</sup>, Muneeswaran A<sup>3</sup>

<sup>1\*</sup> PG Scholar, Department of Varma Maruthuvam, <sup>2</sup> PG Scholar, Department of Varma Maruthuvam,
<sup>3</sup> Lecturer, Department of Varma maruthuvam, .Government Siddha Medical College and Hospital, Palayamkottai.

# ABSTRACT

Varma maruthuvam is a unique system of medicine which comes under in siddha system. Kaalkavali varma kudineer is one of the internal medicine mentioned in the textbook of varma marunthu seimuraigal (Formulary of varma medicine) which indicates kaal vali, veekam, ullankal narambu virviruppu, kaalkavali varma noigal.

Osteo arthritis of knee is a form of arthritis that features the breakdown and eventual loss of the cartilage of knee joints. The most common symptoms of Osteo arthritis, pain in the joint after repetitive use along with loss of range of motion and function. In varma text, *perumootu vatham* occurs due to derangement of *azhal* or *pitha dhosam* which is basic reason of this disease. The deranged *pitham* heat dries up the synovial fluid present in the knee joint resulting in crepitation, restricted movements and later swelling. In textbook of *Vadha Noi Nidhanam-800(649/800)* Signs and symptoms of *perumootu vatham* can be correlated with osteo arthritis of knee joint.

The aim of the study was to evaluate the Biochemical analysis of the trial drug *Kaalkavali varma kudineer* and it indicates the presence of calcium, Sulphate, chloride, starch, ferrous iron, unsaturation compound, Reducing sugar, aminoacid which revealed the enhancement of therapeutic action in *vadha* diseases.

# **Keywords:**

Perumottu Vatham, Osteoarthritis, Biochemical Analysis, Siddha Varmam Medicine, Kaal kavali kudineer.

Address for correspondence:

Vasanthan T PG Scholar,

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# **INTRODUCTION**

Osteo arthritis is a form of arthritis that features the breakdown and eventual loss of the cartilage of one or more joints. Eventually, cartilage begins to degenerate by flaking or forming tiny crevases. Osteoarthritis usually affects the weight bearing joint (i.e.knee joint, hip joint).The most common symptoms of Osteo arthritis in pain in the joint after repetitive use along with loss of range of motion and function.

# **OSTEO ARTHRITIS; SIDDHA ASPECT**

In varma text, perumootu vatham occurs due to derangement of azhal or pitha dhosam which is basic reason of this disease. The deranged pitham heat dries up the synovial fuid present in the knee joint resulting in crepitation, restricted movements and later swelling. Sometimes a low grade fever is present. Osteo arthritis mainly affects the major joints like knee, hip, shoulder, and spine. Signs and symptoms of perumootu vatham can be correlated with osteo arthritis of knee joint (Reference: Vadha Noi Nidhanam-800(649/800).

#### **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:**

Cleaned raw drugs are made into coarse powder, Take 5 gram of coarse powder and added 720ml of water then heated gently and reduced to 90ml.

#### **Biochemical analysis:**

Screening the drug *Kaalkavali Varma Kudineer* 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 Bio chemical analysis of the trial drug Kaalkavali varma kudineer was tabulated above in table 2. The trial drug contains Calcium, sulphate, Chloride, Starch, ferrous ion, Unsaturated compound, reducing sugar and amino acids. Mode of action of the trial drug *Kaalkavali Varma Kudineer* which brings about the Bone Mineralisation osteoblastic and osteoclastic activity in the body. May be due to the presence of calcium, Sulphate, chloride, starch, unsaturated compound, reducing sugar, Amino acid, Ferrous Iron in it.

DRUG	BOTANICAL NAME	FAMILY	PART USED	QUANTITY
Athimathuram	Glycyrrhiza glabra	Fabaceae	Root	1 part
Malli	Coriandrum sativum	Apiaceae	Fruit	1 part
Cheeragam	Cuminum cyminium	Apiaceae	Fruit	1 part
Thirikadugu	Zingiber officinale			
A.Chukku	Piper nigrum	Zingiberaceae	Rhizome	1 part
B.Milagu	Piper longum	Piperaceae	Unriped fruit	1 part
C.Thippili		Piperaceae	Unriped fruit	1 part
Peipeerku	Luffa amara	Cucurbitaceae	Whole plant	1 part
Peipudal	Trichosanthes cucumerina	Cucurbitaceae	Whole plant	1 part
Vepampattai	Azadirachta indica	Meliaceae	Bark	1 part
Devadaru	Cedrus deodara	Pinaceae	Bark	1 part
Nerunjimul	Tribulus terrestris	Zygophyllaceae	Fruit	1 part
Karukku Neer (Ilaneer)	Cocos nucifera	Arecaceae	Tender coconut water	Required quan- tity

# Table 2. Biochemical analysis of Kavalikaala varma kudineer

EXPERIMENT	OBSERVATION	INFERENCE
<b>TEST FOR CALCIUM</b> 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 pres- ence of calcium
<b>TEST FOR SULPHATE</b> 2ml of the extract is added to 5% Barium chloride solution.	A white precipitate is formed	Indicates the pres- ence of sulphate
<b>TEST FOR CHLORIDE</b> The extract is treated with silver nitrate solution	A white precipitate is formed	Indicates the pres- ence of chloride
<b>TEST FOR CARBONATE</b> The substance is treated with concentrated Hcl.	No brisk effervessence is formed	Absence of car- bonate
<b>TEST FOR STARCH</b> The extract is added with weak iodine solution	Blue colour is formed	Indicates the pres- ence of starch
<b>TEST FOR FERRIC IRON</b> The extract is acidified with Glacial acetic acid and potassium ferro cyanide.	No blue colour is formed	Absence of ferric iron
<b>TEST FOR FERROUS IRON</b> The extract is treated with concentrated Nitric acid and Ammoni- um thiocyanate solution	Blood red colour is formed	Indicates the pres- ence of ferrous iron
<b>TEST FOR PHOSPHATE</b> The extract is treated with Ammonium Molybdate and concen-	No yellow precipitate is formed	Absence of phos- phate
TEST FOR ALBUMIN The extract is treated with Esbach's reagent	No yellow precipitate is formed	Absence of albu- min
<b>TEST FOR TANNIC ACID</b> The extract is treated with ferric chloride.	No blue black precipi- tate is formed	Absence of Tannic acid
<b>TEST FOR UNSATURATION</b> Potassium permanganate solution is added to the extract	It gets decolourised	Indicates the pres- ence of unsaturat- ed compound
<b>TEST FOR THE REDUCING SUGAR</b> 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 pres- ence of reducing sugar
<b>TEST FOR AMINO ACID</b> 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 pres- ence of Amino acid
<b>TEST FOR ZINC</b> The extract is treated with Potassium Ferro cyanide.	No white precipitate is formed	Absence of zinc

#### CONCLUSION

Kaalkavali Varma Kudineer is a Siddha Varmam drug taken from a Siddha varma literature used in the treatment of Osteo arthritis knee. 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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