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Evaluation of *In vitro* Antiurolithiatic Activity of Vaishvanara Churna

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Vaishvanara churna is a ayurvedic formulation used traditionally as laxative, analgesic, anti-inflammatory agent. Vaishvanara churna composed of *Saindhava lavana*, Ajowan, Ajamoda, Shunti, and Haritaki. Effect of aqueous extract of churna on calcium oxalate crystallization was evaluated. Calcium oxalate crystallization was induced by the addition of 0.01M sodium oxalate solutions in synthetic urine. The effect of extract (100 and 200 µg/ml) was studied by time course measurement of absorbance at 620 nm for ten minutes by means of a spectrophotometer. Aqueous extract at 100 and 200 µg/ml concentration of extract showed inhibition at 120 sec (17.85 and 25 %), and maximum inhibition of the crystallization of calcium oxalate at 600 seconds (50 and 53.51 %).

Keyword: Vaishvanara churna, Urolithiatic Activity, Calcium Oxalate.

1. Introduction

Vaishvanara churna is a ayurvedic formulation used in the treatment of arthritis, constipation, abdominal pain and improves digestion, strength and immunity. Vaishvanara means fire in Sanskrit. Hence this product is useful to correct digestive fire (system). Churna contains of *Saindhava lavana* (Rock salt), Ajowan (*Trachyspermum ammi*), Ajamoda (*Carum roxburghianum*), Shunti (*Zingiber officianale*) and Haritaki (*Terminalia chebula*)^[1]. The main aim of the present investigation was to screen antiurolithiatic activity of Vaishvanara churna.

Dose: 1-3 gm twice or thrice a day with hot water or butter milk.

2. Material and methods

2.1 Preparation of Churna and Extraction

Vaishvanara churna contains: *Saindhava lavana* (Rock salt) -2 parts, Ajowan

(*Trachyspermum ammi*)-2 parts, Ajamoda (*Trachyspermum roxburghianum*) - 3 parts, Shunti (*Zingiber officianale*) -5 parts, Haritaki (*Terminalia chebula*) are made into fine powder, possessed through sieve no.100 and mixed. The prepared churna was extracted with water and dried.

2.2 Experimental Protocol

The effect of extract on CaOx crystallization was determined by the time course measurement of turbidity changes due to the crystallization in artificial urine on addition of 0.01M sodium oxalate solution. The Precipitation of calcium oxalate at 37°C and pH 6.8 has been studied by the measurement of turbidity at 620 nm using UV/Visible spectrophotometer.

2.3 Preparation of Artificial Urine

The artificial urine (AU) was prepared according to the method Burns and

Finlayson² with slight modification and had the following composition: sodium chloride 105.5 mM, sodium phosphate 32.3 mM, sodium citrate 3.21 mM, magnesium sulfate 3.85 mM, sodium sulfate 16.95 mM, potassium chloride 63.7 mM, calcium chloride 4.5 mM, sodium oxalate 0.32 mM, ammonium hydroxide 17.9 mM, and ammonium chloride 0.0028 mM. The AU was prepared fresh each time and pH adjusted to 6.0.

2.4 Study without Inhibitor

A volume of 1.0 ml of AU was transferred into the cell and 0.5 ml of distilled water added to it and blank reading was taken. The 0.5 ml of 0.01M sodium oxalate was added, to the previous volume, and the measurement is immediately started for a period of ten minutes.

2.5 Study with Inhibitor^[3]

The aqueous extract of Vaishvanara churna was dissolved in distilled water, filtered through membrane filter and the concentration of 100 and 200 µg/ml was obtained. A mixture of 1 ml of AU and 0.5 ml of plant extract solution is versed in the cell. A blank reading was taken and then 0.5 ml of 0.01M sodium oxalate solution was added and immediately the absorbance was measured for a period of ten minutes with two minutes interval at 620nm. The percentage of inhibition was calculated using the following formula:

$$\% \text{ inhibition} = \frac{\text{Absorbance of Control} - \text{Absorbance of Test X} \times 100}{\text{Absorbance of Control}}$$

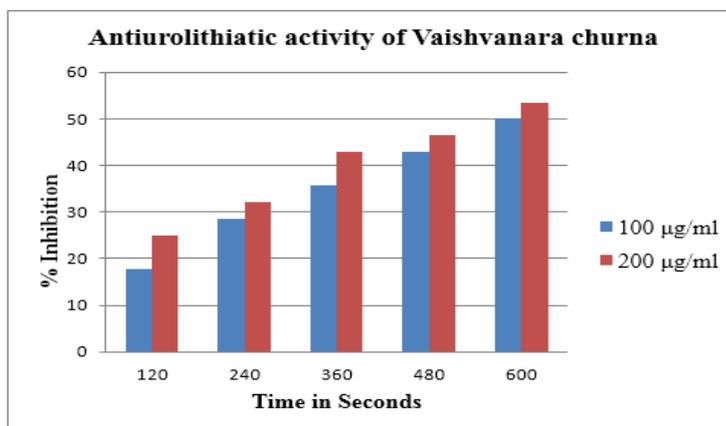
3. Results and Discussion

Graph 1 showed antiurolethiatic activity of aqueous extract of Vaishvanara churna. Aqueous extract at 100 and 200 µg/ml concentration of extract showed inhibition at 120 sec (17.85 and 25 %), and maximum inhibition of the crystallization of calcium oxalate (CaOx) at 600 seconds (50 and 53.51 %).

Vaishvanara churna an ayurvedic formulation used in the treatment of arthritis, constipation, abdominal pain and improves digestion, strength and immunity^[1] (Annonymus, 2007). Vaishvanara churna contents possess anti-inflammatory and kidney disorders: of *Saindhava lavana*^[4], *Trachyspermum ammi*^[5,6], *Trachyspermum roxburghianum*^[7], *Zingiber officianale*^[8] and *Terminalia chebula*^[9]. So our preliminary studies showed that Vaishvanara churna useful as antiurolithiatic, *in vivo* studies are required to provide further support for its use.

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7. References

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