APHRODISIAC ACTIVITY OF SEMECARPUS ANACARDIUM NUT

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ABSTRACT

Spices are considered as sexual invigorators in the Unani System of Medicine. In order to explore the sexual function improving effect of Semecarpus anacardium an experimental study was conducted in normal male mice. The chloroform extract of Semecarpus anacardium was administered (150 mg/kg & 300 mg/kg; p.o.) to different groups of male Mice. Mounting behavior & mating performance were determined and compared with the standard drug Penegra (Sildenafil citrate). The extracts of the Semecarpus anacardium were found to stimulate the mounting behavior of male mice, and also to significantly increase their mating performance. The extracts Semecarpus anacardium enhanced the sexual behaviour of male mice.

Key words: Aphrodisiac, Mounting behavior, mating & Semecarpus anacardium.

INTRODUCTION

Aphrodisiac are the substances which are used to increase sexual activity and help in fertility. Sexual feelings are as inevitable part of life. The basic and fundamental purpose of sex and sexuality in the “continuation of progeny” and the survival of human race. These agents have been used since a pretty long time and there are enough evidences showing their use by the ancient Greek and Arab physicians eg. Hippocrates (460 B.C.), Dioscorides (70 A.D.), Raazi (926 A.D.), Ibn-e-Sina (1038 A.D.) etc. The availability of the large number of sexual function improving drugs in the traditional Unani System of Medicine is a unique and distinctive feature of this system. Besides having many specific drugs for enhancing sexual functions, there are some vegetables used for this purpose in traditional medicine practice in cases of sexual debility or depressed desire.

In the present study we selected a plant namely Semecarpus anacardium (Linn.) belonging to the family of Anacardiaceae. It is distributed in the sub-Himalayan tract from the Bias eastwards, ascending in the outer hills up to 3,500 ft., Assam, Khasia hills, Chittagong, Central India and the Western Peninsula. The fruit and seed are acrid in taste, hot, sweetish. In traditional system of medicine it is used as a digestible, aphrodisiac, anthelmintic laxative. It also used treat skin diseases, piles, dysentery, tumors, fevers, loss of appetite, urinary discharges, heals ulcers, and strengthens the teeth, useful in insanity, asthma. The oil is tonic, makes hair black, good for leucoderma, coryza, epilepsy and other nervous diseases. It lessens inflammation, useful in paralysis and superficial pain

Earlier the plant has been studied for its analgesic and anti-inflammatory, antiarthritic, antimicrobial, antibacterial, anthelmintic, antimutagenic, antidiabetic, antioxidant, fungistatic, hepatocellular carcinoma, hypcholesterolemic, hypolipidemic, immunomodulatory and mammary carcinoma activities.

MATERIAL AND METHODS

Plant Material Collection

Seeds of plant were collected from local regions of Uttar Pradesh, and the plant was authenticated as Semecarpus anacardiumby the Dr. A.K.S.Rawat, National Botanical Research institute(NBRI), Lucknow Campus. A voucher specimen (Specimen No: NBRI/CIF/328/2012) is preserved in NBRI, Lucknow, India.

Preparation of Chloroform Extract

The air dried nuts were extracted successively with the following solvents of their increasing polarity in a soxhlet extractor. 1) Pet. Ether (60-80%), 2) Chloroform, 3) Alcohol After alcoholic extraction macerated the mark with chloroform water for 24 h to obtained the aqueous extract. Concentrate the each extract solvent by using flash evaporator to dryness on the water bath in low heat. Weighed the residue obtained with each solvent and determine its % in terms of air dried weight to the nut material (% w/w) to obtained successive solvent extractive values. On the basis of % yield highest percentage of the extract was selected for the study.

Experimental Animals

Male Wistar mice about 30 - 35 g were used for study. All animals were housed in a group of 6 in polyethylene cages under standard housing conditions (12:12h light and dark cycle, temperature 22±2°C and humidity 50±10%) with standard feed pellet and free access to water ad libitum. Standard hygiene conditions were maintained. The animal experiments were performed in accordance with our Institutional Animal Ethics Committee (IAEC/APPC/01/12) and by the animal regulatory body of the government. After two weeks of acclimatization, animals were used for the following studies.

Experimental design

Mating behaviour test

Mount is operationally defined as the male assuming the copulatory position but failing to achieve intromission. To quantify mounting behaviour, non-estrous female mice were paired with males treated with single dose of the drugs (150
mg/kg; p.o.). Animals were observed for 3 hrs and their behaviours were scored as described [25]. Males were placed individually in a glass cage. After 15 minutes of acclimatization, a non-estrous female was introduced into the arena. The numbers of mounts were recorded during a 15 minutes observation period at the start of 1 hr. Then the female was separated for 105 minutes. Again the female was introduced and the number of mounts was observed for 15 minutes as before at 3rd hr. All the experiments were performed between 09.00 to 12.00 hrs during day time at room temperature 26–27°C. To determine the effect of *Semecarpus anacardium* and Penegra on mounting four groups of six animals each were taken for the study. All drugs were dissolved in distilled water just before the administration. The first group received distilled water (10 ml/kg; p.o.) and served as control. Groups II received Penegra (5 mg/kg; p.o.) and served as standard. III and IV were given the extracts of *Semecarpus anacardium* (150 mg/kg & 300mg/kg; p.o.).

**Assessment of mating performance** 22,23

Male mice divided into 4 groups of six each were used in the study. The first group received distilled water (10 ml/kg; p.o.) and served as control. Groups II received Penegra (5 mg/kg; p.o.) and served as standard. III and IV were given the extracts of *Semecarpus anacardium* (150 mg/kg & 300mg/kg; p.o.). The drugs were administered in the morning (10AM) and each male was placed in a separate cage. After 1 hr, five estrous female were admitted into each cage and they were cohabitated overnight. The stage of the estrous cycle was determined.22 The vaginal smear of each female mouse was examined under a microscope for the presence of sperm. The number of sperm positive female was recorded in each group.

**RESULT & DISCUSSION**

**Table 1: Effect of chloroform extracts of *Semecarpus anacardium* on mounting behaviour of Male mice**

<table>
<thead>
<tr>
<th>Groups ( N=6)</th>
<th>Number of mounts/15 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st hr</td>
</tr>
<tr>
<td>Control</td>
<td>3.25±0.479</td>
</tr>
<tr>
<td>Penegra (Sildenafil citrate) (5 mg/kg; p.o.)</td>
<td>12.5±0.645</td>
</tr>
<tr>
<td><em>Semecarpus anacardium</em> (150 mg/kg; p.o.)</td>
<td>6.75±0.629**</td>
</tr>
<tr>
<td><em>Semecarpus anacardium</em> (300 mg/kg; p.o.)</td>
<td>8.75±0.793</td>
</tr>
</tbody>
</table>

Values are mean ± S.E.M, n = number of animals in each group; Significant difference from control and standard. P* =< 0.01, P** =< 0.001.

In ethnomedical practices, several formulations containing these spicy drugs are used for sexual function improvement. The present study revealed that the chloroform extracts of *Semecarpus anacardium* can significantly enhance male sexual activity in normal mice. In the present study, it was observed that the sexual behavior of male mice with *Semecarpus anacardium* (300 mg/kg) was greater than *Semecarpus anacardium* (150 mg/kg). Whereas, it was found highly significant in the animals treated with Penegra. However, since this drugs are clinically used in the Unani System of Medicine without any recorded toxicity, thereby suggesting that the short term use of these drugs for this purpose is apparently safe. Generally elevated testosterone level also enhanced the sexual behaviour in humans. Moreover, drugs induced changes in neurotransmitter levels or their action at cellular level could also change sexual behaviour [27]. The enhanced effect of *Semecarpus anacardium*, as observed in sexual behaviour of animals, may be owing to this property in conjunction with the nervous stimulating activity of the drug. *Semecarpus anacardium* exhibited more increment of mating performance in mice in comparison with the increased sexual motivation. The standard drug Sildenafil citrate was used as a referent only for quantitative comparison and not for mechanistic purpose. For conducting the study the parallel experimental design is used. However, for more corroborative evidence of the drug's activity the twin crossover method may be used. The results are statistically significant.

**CONCLUSION**

Our study suggested that the systemic use of chloroform extracts of *Semecarpus anacardium* has sexual behavior enhancing effect in male mice.

**REFERENCES**


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