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Research Article

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. [1] These agents have been used since a pretty long time and there are enough evidence showing their use by the ancient Greek and Arab physicians eg. Hippocrat (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 certain most commonly used spices like *Myristica fragrans* Houtt, (Nutmeg) *Syzygium aromatium* (L) Merr. & Perry, (clove) *Piper nigrum*. Linn. (black paper), *Semecarpus anacardium* etc. which are empirically used as promising aphrodisiacs in traditional medicine practice in cases of sexual debility or depressed desire.[2]

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 [3]

Earlier the plant has been studied for its analgesic and anti-inflammatory[4], antiarthritic[5], antimicrobial[6], antibacterial[7], anthelmintic[8], antimutagenic[9], antidiabetic[10], antitumour[11], antioxident[12], fungistatic[13], hepatocellular crcinoma[14-16], hypocholesterolemic[17],hypolipidemic[18], immunomodulatory[19] and mammary carcinoma[20] 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 anacardium*by 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 [21]

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

Mounting behaviour test [22,23]

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 1st 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

Groups (N=6)	Number of mounts/15 minutes	
	1st hr	3rd hr
Control	3.25±0.479	2.25±0.250
Penegra (Sildenafil citrate) (5 mg/kg; p.o.)	12.5±0.645***	10.2±0.479***
Semicarpus anacardium (150 mg/kg; p.o.)	6.75±0.629**	5.25±0.75**
Semicarpus anacardium (300 mg/kg; p.o.)	8.75±0.793***	6±0.408***

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 *Semicarpus 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 *Semicarpus anacardium* (300 mg/kg) was greater than *Semicarpus 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 *Semicarpus anacardium*, as observed in sexual behaviour of animals, may be owing to this property in conjunction with the nervous stimulating activity of the drug. *Semicarpus anacardium* exhibited more increament 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 *Semicarpus anacardium* has sexual behavior enhancing effect in male mice.

REFERENCES

1. Wani1 JA, Achur1 RN, Nema RK. Phytochemical Screening and Aphrodisiac Activity of *Asparagus racemosus.* IJPSDR 2011;3(2):112-15.
2. Tajuddin, Ahmad S, Latif A, Qasmi IA. Aphrodisiac activity of 50% ethanolic extracts of *Myristica fragrans* Houtt. (nutmeg) and *Syzygium aromaticum* (L) Merr. & Perry. (clove) in male mice: a comparative study. *BMC Complementary and Alternative Medicine* 2003;3.
3. Basavaraj P, Shivakumar B, Shivakumar H, Giresh HN, Jali1 MV. Anxiolytic activity of *Semecarpus anacardium (*linn.) nut extract in mice. Pharmacologyonline2011; 660-74
4. Jabbar S, Khan MTH, Choudhri MSK, Chowdhary NMH and Gafur MA, Analgesic and anti-inflammatory activity of activity of Semecarpus anacardium (Linn.) Hamdard Medicus, 1998; 41 (4): 73-80.
5. Vijayalakshmi T, Muthulakshmi V, Sachdanandam P, Effect of the milk extract of Semecarpus anacardium nut on adjuvant arthritis a dose-dependent study in Wistar albino rats. Gen Pharmacol, 1996; 27 (7): 1223-1226. http://dx.doi.org/10.1016/S0306-3623(96)00042-0
6. Nair A, Bhide SV, Antimicrobial properties of different parts of Semecarpus anacardium. Indian drugs, 1996; 33: 323-328.
7. Patwardhan BK, Francis RP, Kapre SV, Sharma KD. Antibacterial activity of Semecarpus anacardium extracts, Bulletin of the Haffkin Institute, 1982; 10 (2): 27- 30.
8. Sharma PV, Chaturvedi C. In-vitro anthelmintic effects of Semecarpus anacardium (Linn.). J Med Sci, 1964; 5 (1): 58-68.
9. Kothari AB, Lahiri M, Ghaisas SD, Bhide SV. In-vitro studies on antimutagenecity of water, alcoholic and oil extract of Semecarpus anacardium. Ind J Pharmacol, 1997; 29: 301-305.
10. Arul B, Kothai R, Christina AJ. Hypoglycemic and antihyperglycemic effect of Semecarpus anacardium (Linn.) in normal and streptozotocin-induced diabetic rats. Exp Clin Pharmacol, 2004; 26 (10): 759-62.
11. Indap MA, Ambaye RY, Gokhale SV. Anti-tumour and pharmacological effect of the oil from Semecarpus anacardium (Linn.). Ind J Physiol Pharmacol, 1983; 27: 2.
12. Premalatha B, Sachdanandam P. *Semecarpus anacardium* L. nut extract administration induces the in vivo antioxidant defense system in aflatoxin B1 mediated hepatocellular carcinoma. J Ethnopharmacol, 1999; 66 (2): 131-9. http://dx.doi.org/10.1016/S0378-8741(99)00029-X
13. Sharma K, Shukla SD, Mehta P, Bhatnagar M. Fungistatic activity of nut extracts of Semecarpus anacardium (Linn.). Ind J Exp Biol, 2002; 40: 314-318.
14. Premalatha B, Sachdanandam P. Effect of *Semecarpus anacardium* nut extract agaist aflatoxin B1-induced hepatocellular carcinoma. Fitoterapia 1999; 70: 484- 492. http://dx.doi.org/10.1016/S0367-326X(99)00043-X
15. Premalatha B, Sachdanandam P. Semecarpus anacardium L. nut extract administration induces the in vivo antioxidant defence system in aflatoxin B1 mediated hepatocellular carcinoma. J Ethnopharmacol, 1999; 66 (2): 131-9. http://dx.doi.org/10.1016/S0378-8741(99)00029-X
16. Premalatha B, Muthulakshmi V, Sachdanandam P. Anticancer potency of the milk extract of Semecarpus anacardium (Linn.) nuts against aflatoxin B1 mediated hepatocellular carcinoma bearing Wistar rats with reference to tumour marker enzymes. Phytother Res, 1999; 13 (3): 183-187.http://dx.doi.org/10.1002/(SICI)1099-1573(199905)13:3<183::AID-PTR420>3.0.CO;2-5

17. Sharma A, Mathur R, Dixit V P. Hypocholesterolemic activity of nut shell extracts of Semecarpus anacardium (Bhilawa) in cholesterol fed rabbits. Indian J. Exp. Biol 1995; 33: 444-448.
18. Tripathi YB, Pandey RS. Semecarpus anacardium L. nuts inhibit lipopolysaccharide induced NO production in rat macrophages along with its hypolopidemic property. Ind J Exp Biol, 2004; 42: 432-436.
19. Ramprasath ARK, Shanthi P, Sachdanandam P. Immunomodulatory and Anti-inflammatory effects of *Semecarpus anacardium (Linn*.) nut milk extract in experimental inflammatory conditions. Biol Pharma Bull 2006;29(4): 693-700. http://dx.doi.org/10.1248/bpb.29.693
20. Arathi G, Sachdanandam P. Therapeutic effect of Semecarpus anacardium (Linn.) nut milk extract on carbohydrate metabolizing and mitochondrial TCA cycle and respiratory chain enzymes in mammary carcinoma in rats. J Pharm Pharmacol, 2003; 55 (9): 1283-90. http://dx.doi.org/10.1211/0022357021710
21. Basavaraj P, Shivakumar B, Shivakumar H, Manjunath, Nanjappaiah H M. Evaluation of Anticonvulsant Activity of *Semecarpus anacardium* (Linn.) Nut Extract. IJPSR 2011; 2(6): 1572-81.
22. Balamurugan G, Muralidharan P, Polapala S. Aphrodisiac activity and curative effects of *Pedalium murex* (L.) against ethanol-induced infertility in male rats. Turk J Biol 2010;34:153-63.
23. Subramoniam A, Madhavachandran V, Rajasekharan S, Pushpangadan P. Aphrodisiac property of *Trichopus zeylanicus* extract in male mice. Journal of Ethnopharmacol 1997;57:21–27 http://dx.doi.org/10.1016/S0378-8741(97)00040-8

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