



APHRODISIAC ACTIVITY OF ACID PHOS ON MALE ALBINO RAT

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Abstract

The present study was designed to evaluate the effect of oral administration of acid phos (H₃PO₄) drug on male albino rat, *Rattus norvegicus*. Acid phos is used as drug in homeopathy for various treatments. The albino rat, *Rattus norvegicus* were divided into four groups as control (n=6) and experimental (n=18). The treated rats were administered orally a dose of acid phos 4ml/kg body weight for 15 days, 30 days and 45 days (n=6). The control groups were treated with distilled water. Mating test was performed on five animals from each group on days 15, 30 and 45 of the study. Results show significant increase in (p<0.05) in mount frequency (MF) and in intromission frequency (IF) whereas mount latency (ML) and intromission latency (IL) were showed little effect, so it is concluded that the homeopathic drug acid phos enhances the sexual excitement and could be useful in the management of male sexual dysfunction.

Keywords: aphrodisiac, male sexual behaviour, acid phos, *Rattus norvegicus*

Introduction

An aphrodisiac is defined as a substance or activity which arouses sexual desire and interest and which are used extensively by the human beings seeking to improve their sexual life and help in erectile dysfunctions (ED) sometimes called impotence (Semwal, *et al.*, 2013). Human race is continued by formation of progeny and it is the basic and fundamental purpose of sex (Kothari, 2001). Sexual difficulties often give rise to certain disorders like depression or psychological problems. Male sexual dysfunction is defined as difficulty of male partner to have sexual activity with female partner (Yakubu, *et al.*, 2005). Sexual

dysfunction may lead to psycho-social problem which affects men by various ways (Adimoleilija, 1997). Physical or emotional stress is a intense disruptive cause for reproductive function (Johnson *et al.*, 1992).

Sexual dysfunctions like premature ejaculation, erectile dysfunction, retarded ejaculation, difficulties in arousal activity found in mens (Yakubu, *et al.*, 2007). Erectile dysfunction (ED) includes inability to achieve erection and it is one of the major sexual problems associated with depression, neurologic, endocrine, vascular and systemic disorder and (Malviya, *et al.*, 2011, Santosh, *et al.*, 2011). ED is not life threatening disease but it may represent an early sign of cardiovascular disease (Cirino, *et al.*, 2006). ED affects the higher proportion in mens so it is considered as one of the most important public health problem (Veeresh, 2016). However, unfortunately because of much wrong information, myths and misconception, negative attitude, ignorance and fear etc. information passes generation to generation and it may result into sexual dysfunction (Gupta *et al.*, 2013).

Infertility is a worldwide social and medical problem, it affects about 10-15% of married couples. WHO estimates that there are 60-80 million infertile couples world wide. Infertility may not threaten physical health but it can certainly produce serious effects on social life and mental life of infertile couples. In many countries problems like infertility often leads to marital disharmony or divorce (Badami, *et al.*, 2000 and WHO, 1992). Epidemiological studies have demonstrated a high prevalence of erectile dysfunction (ED) in developed countries and therefore it is considered to be an important health problem, however sexual problem has been shown to be more prevalent in the aging population (Hatzimouratidis, *et al.*, 2010).

Synthetic drugs like Vardenafil, Tadalafil, Tadalafil citrate, Alprostadil, Papaverin, Sildenafil citrate are used for the treatment of ED but it was found that all these drugs having their fatal side effects such as sudden hypotension, abnormal vision, hypotension, infertility, hypersensitivity reaction, suicidal tendencies, mental disorder and tremors (Kasper, *et al.*, 2005).

Material and Methods:

Animals: healthy adult albino rats of wistar strains weighing about 200-280 gm were obtained from Vidyabharti Pharmacy College, Amravati. The rats of either sex were isolated and housed in separate polypropylene cages during the course of experimental period and maintained them at controlled room temp. (24-25 °C) with 12:12 hr light/dark cycle. The animals were fed with standard pellet diet provided water *ad libitum*. The animals were acclimatized for about 4 weeks before the experimentation. The study was carried out after approval by the Institutional Animal Ethical Committee (registration number, 1505/PO/a/11/ CPCSEA, dated 23/9/11) before actual experimentation sex screening test was carried out and male rat showed consistent parameters of sexual behaviour.

The drug i.e. acid phos was purchased from homeopathic material store (Amravati, India). This drug was authenticated by homeopathic doctor, acid phos is available in different concentration but drug with low conc. was selected for whole experiment and about 2ml/kg of drug volume was selected for oral administration.

Experimental design: a total 24 healthy experimental male rats were selected and were housed separately. They were randomly divided into 4 groups of 5 animals each.

Group 1: Served as a control group and treated with (4ml /kg bodyweight) distilled water.

Group 2: Administered acid phos (4 ml/ kg body weight) orally for 15 day.

Group 3: Administered acid phos (4 ml/ kg body weight) orally for 30 day.

Group 4: Administered acid phos (4 ml/ kg body weight) orally for 45 day.

After the treatments, the mating behaviour test was carried out by Daniel (1987) and Dewsbury and Davis (1970). The test was carried out under dim light. Female rats those who were in

oestrus cycle were allowed to mate with male in observation cage and behaviour was measured with parameters. The data were expressed as mean±SE of six replicas. Student's t test was used for comparison.

Male rat sexual behaviour:

After introduction of drug for 15 days, sexually receptive female rat was used as a mating stimulus, a sexually receptive female was introduced in the cage and sexual behaviour of a male rat with female rat was observed from the cage side. Sexual behaviour parameters were monitored for about 30 mins. observatory period by camera and direct observation.

In the case of those male rats that couldn't have an intromission within first 15 mins. then that rat was removed and replaced with another rat. According to standard and basic procedures, the following male sexual parameters were calculated for the observatory period, 1) Mount latency (ML), time from introduction of the female into the cage until the first mount. 2) Ejaculation latency (EL), time from the first intromission until ejaculation. 3) Mount frequency (MF), the number of mounts in a series. 4) Intromission frequency (IF), the number of intromissions in a series. 5) Ejaculation frequency (EF), the number of times there was expulsion of semen by males after vaginal penetration characterized by rhythmic contraction of the posterior abdomen.

Statistical analysis:

After recording the sexual behaviour parameters, data was expressed as mean±SE and analysed. The comparison of means between control and experimental group was done by t-test $p < 0.05$ was regarded as significant. Excel 2010 was used for analysis.

Result:

Mating behaviour test:

The results which was found during sexual behaviour parameters are given in table, the effects of dose of acid phos on male rat was studied during experiment and showed that when the dose of acid phos was given to the rats for 15 days, no significant effect was observed during dose period but noticeable effect in behaviour was observed after 30 days. The dose of acid phos produced a significant increase in MF, IF, EJJ, and reduction in ML, IL.

1) Mount latency:

During observation of animal treated with acid phos after 30 days it was found that there was decrease in mount latency.

2) Intromission latency:

During observation of animal treated with acid phos after 30 days it was found that there was decrease in intromission latency.

3) Mount frequency:

The results obtained showed that a significant increase in mount frequency was observed in animals when treated with acid phos for about

30 days where as when the same rat observed for 15 days then moderate aphrodisiac activity was found ($p < 0.05$).

4) Intromission frequency:

Intromission frequency is expected to increase if the test drug is effective and the observation during aphrodisiac activity, it was found that drug acid phos was significant ($p < 0.05$).

5) Ejaculation frequency:

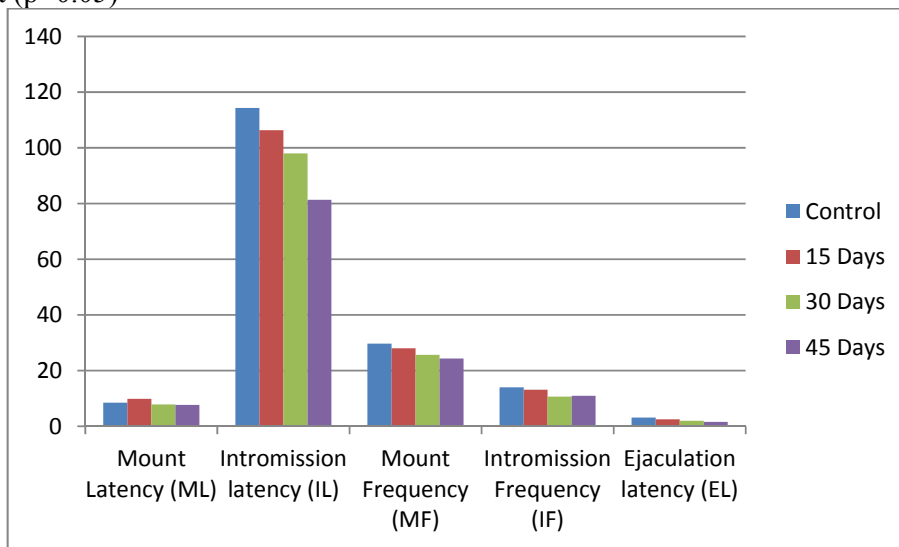
During observation of animal treated with acid phos, it was found that there was decrease in ejaculation frequency.

Table: Effect of acid phos on male rat sexual behaviour parameters

Treatment Groups	Mount Latency (ML)	Intromission latency (IL)	Mount Frequency (MF)	Intromission Frequency (IF)	Ejaculation latency (EL)
Control	8.5±0.8	114.33±5.8	29.66±2.2	14±1.1	3.16±0.5
15 Days	9.83±3.1	106.33±3.3	28±1.7*	13.16±0.9	2.5±0.5
30 Days	7.83±0.5	98±1.3	25.66±1.6	10.66±0.8	2±0.4
45 Days	7.66±0.3	81.33±7.5	24.33±0.7	11±1.0*	1.6±0.3

Values in Mean±SE (Standard Error), n=6

*Significant ($p < 0.05$)



Discussion:

Rodents and humans shows a similar basic and neural behavioural mechanisms which controls sexual desire or motivation hence because of this reason rodent is a suitable model for the study of sexual behaviour (Agmo, *et al.*, 2004). Humans and rat shows several homologies for the copulatory behaviour including the mechanism of penile erection (Pfaus, 1996).

It was observed that during the treatment of present drug to the rats that the dose possesses aphrodisiac activity in a small quantity. Mating behaviour showed that the amount of this drug have a little effect on Mount Latency (ML), and Intromission latency (IL) whereas it revealed

effects on Mount Frequency (MF), Intromission Frequency (IF) and Ejaculation frequency (EF).

Mount latency (ML), intromission latency (IL) are commonly used for evaluation of sexual motivation in male (Everitt, 1990). Sexual motivation considered to be inversely proportional to Mounting and intromission latencies (Beach, 1956). Both decreased parameters in present study suggest that doses increased sexual desire.

Ratnasooriya and Dharmasiri (2000) and Yakubu *et al.*, (2007) observed that mount latency and intromission latency were shortened with increased frequencies when the rats

supplemented with black tea, these indices are indicators of motivation, vigour and sexual arousability. The number of ejaculations during a time-limited behavioural test determines the mating potential of a male rat (Sachs and Meisel, 1988). Decrease in ejaculation frequency in test doses after 45 days suggest that acid phos causes a prolongation in the duration of coitus, it indicates increase in sexual activity and enhancement in performance of copulation (Ologhaguo, 2013).

Stressful conditions cause adaptive responses in organisms in an attempt to restore homeostasis. The adaptive response to stress appears to depend on the type (physical or emotional), intensity and duration (acute or chronic) of the stimulus, as well as on the characteristics and physiological state of the organism (De Wied, 1980).

Acknowledgement:

The authors acknowledge UGC, New Delhi for financial support and P. G. Department of Zoology, S.G. B. Amravati University, Amravati.

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