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Contraceptive effect of *Hibiscus rosa sinensis* Corr. flowers in male albino rats

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Abstract

To study the contraceptive effect of the aqueous extract of flowers of *Hibiscus rosa sinensis* Corr. in male albino rats. Rats were fed aqueous extract of flowers of *Hibiscus rosa sinesis* (L.) for 30 days (200mg /Kg body wt/day) A reduction in sperm count and motility was observed in treated rats. Reduced fertility due to decreased sperm count and sperm motility was observed.

Key words: *Hibisuss rosa sinensis* Corr. flower, sperm count, sperm motility, spermatozoa.

H*ibiscus rosa sinensis* Corr. (family-Malvaceae) is commonly known as Chinese Hibiscus. This is a native of China. It is used as a potent medicinal plant. It is a common Indian perennial shrub. *Hibiscus rosa sinensis* flower decoctions are used in India and Vanuatu (Malaysia) as aphrodisiacs, for menorrhagia, uterine hemorrhage and for fertility control. It also possesses anticomplimentry, and antiphlogistic activity. Relevant literature[1-10] has been consulted for the preparation of this manuscript.

Plant collection and preparation:

The flowers of *Hibiscus rosa sinensis* were collected from Botanical garden of D.S. College, Aligarh. The flowers were shade dried; crushed and aqueous extract was prepared.

Animals and Groups :

Adult male albino rats weighing 150-180 gm body weight, used for the study, were housed under standard laboratory conditions. They were fed with standard rodent pellets and water *ad libitum*. The animals were grouped into two groups of 6 animals each.

Group A: Control (1 ml distilled water/ day)

Group B: Aqueous extract of flowers of *Hibiscus rosa sinensis* treated with a dose of 200 mg/ kg body wt / day.

Autopsy schedule :

The animals were weighed and autopsied under light anaesthesia 24 hrs after last dose of the treatment.

Body and organ weight :

Body weight of the animals recorded. The testis and epididymes were dissected out, freed from adherent tissues and blood and weighed correctly.

Table – 1. Changes in body testes and epididymes weights after treatment with 200 mg/kg body weight/day oral dose of aqueous extract of flowers of *Hibiscus rosa sinesis*

Treatment	Body Weight (gm)	Testis weight (gm)	Epididymes Weight (gm)
Group A	168.40 ± 8.9	0.7103 ± 0.0219	1.540 ± 0.100
Group B	152.00 ±8.0	0.5034 ± 0.0293	0.986 ± 0.019

Data are expressed as mean ± SEM of 6 animals, Group B was compared with Group A, No significant ($p<0.05$), significant ($p<0.01$)

Table – 2. Changes in sperm count and sperm motility after oral treatment with 200 mg/kg body weight/day dose of aqueous extract of flowers of *Hibiscus rosa sinensis*

Treatment	Sperm Count million/ml	Sperm motility %
Group A	54.17 ± 3.4	88.57 ± 6.3
Group B	9.26 ± 1.2	12.85 ± 4.3

Data expressed as mean ± SE of 6 animals, Group B was compared with Group A highly significant ($p < 0.001$).

Sperm analysis :

Cauda epididymal sperm count and sperm motility were made according to the procedure given by Prasad *et al*.,[7]. One hundred milligram of each tissue minced in 1 ml of physiological saline. For motility, one drop of evenly mixed sample was applied to a microscopic slide covered with a cover slip. Cauda epididymal sperm counts expressed as million/ml suspension. The percent motility was determined by counting both motile and immotile spermatozoa per unit area.

Histological examination :

Testis was fixed in Bouin's fluid. Paraffin sections were cut (5µm) and stained with haematoxylin and eosin.

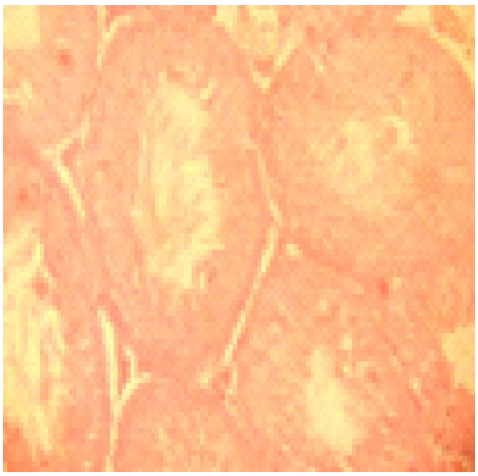
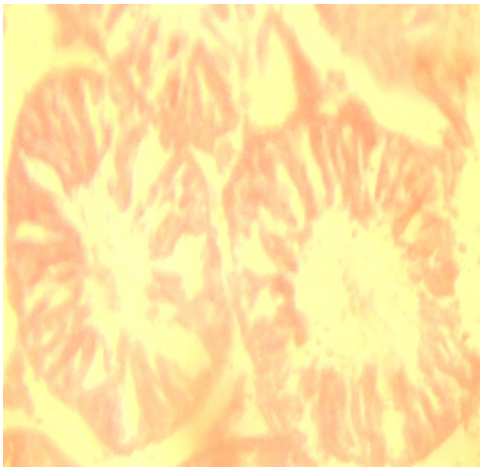


Fig. 1 Photomicrograph of testis of a rat of Group – A showing normal feature with successive stage of transformation of seminiferous tubules to spermatozoa. H and Ex 200



Figs. 2 Photomicrograph of testis of a rat of Group B after 30 days of treatment showing reduced seminiferous tubules diameter and cellular damage of tubular elements. H and Ex 200

Body and organ weight :

Result showed slight decrease in body weight of treated animals. The weight of testes and epididymes decreased significantly ($p<0.01$) as compared to control animals. (Table –1)

Sperm analysis : Aqueous flower extract of *Hibiscus rosa sinensis* caused reduction in sperm count and sperm motility ($p<0.001$) in cauda epididymes. (Table-2)

Histopathology of testics :

Histological studies of control testis showed all successive stages of spermato-genesis, where the lumen was filled with sperms. Leydig cells were situated in between the seminiferous tubules with prominent nuclei (Fig. 1).

The testis of the treated animals revealed arrest of spermatogenesis. The seminiferous tubules appeared reduced in size. Vacuolization was observed in Sertoli cells, spermatogonia and spermatocytes. The lumen was empty. (Fig. 2)

The results of present study show that aqueous extract of flowers of *Hibiscus rosa sinensis* did not cause much alterations in body weight but weight of testis and epididymes showed a significant reduction in treated animals. The process of spermatogenesis is highly disturbed and the accumulation of sperm within the lumen is almost negligible. The vacuolization was observed in the Sertoli cells. Low level of sperm count and motility in cauda epididymis indicates a strong possibility of antifertility activity of extract in male albino

rats.

In the present study, reduction in the number of fertile males was observed and fertility depleted in 30 days of treatment. The reduced number of fertile males may be due to decreased sperm count and motility.

In conclusion, oral administration of aqueous extract of flowers of *Hibiscus rosa sinensis* in male albino rats produced antifertility effects on reproduction due to changes in spermatogenesis.

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