MALE ANTIFERTILITY EFFECT OF MALVIDIN CHLORIDE FROM *MALVAVISCUS CONZATTII* GREENUM FLOWERS IN LANGUR MONKEYS

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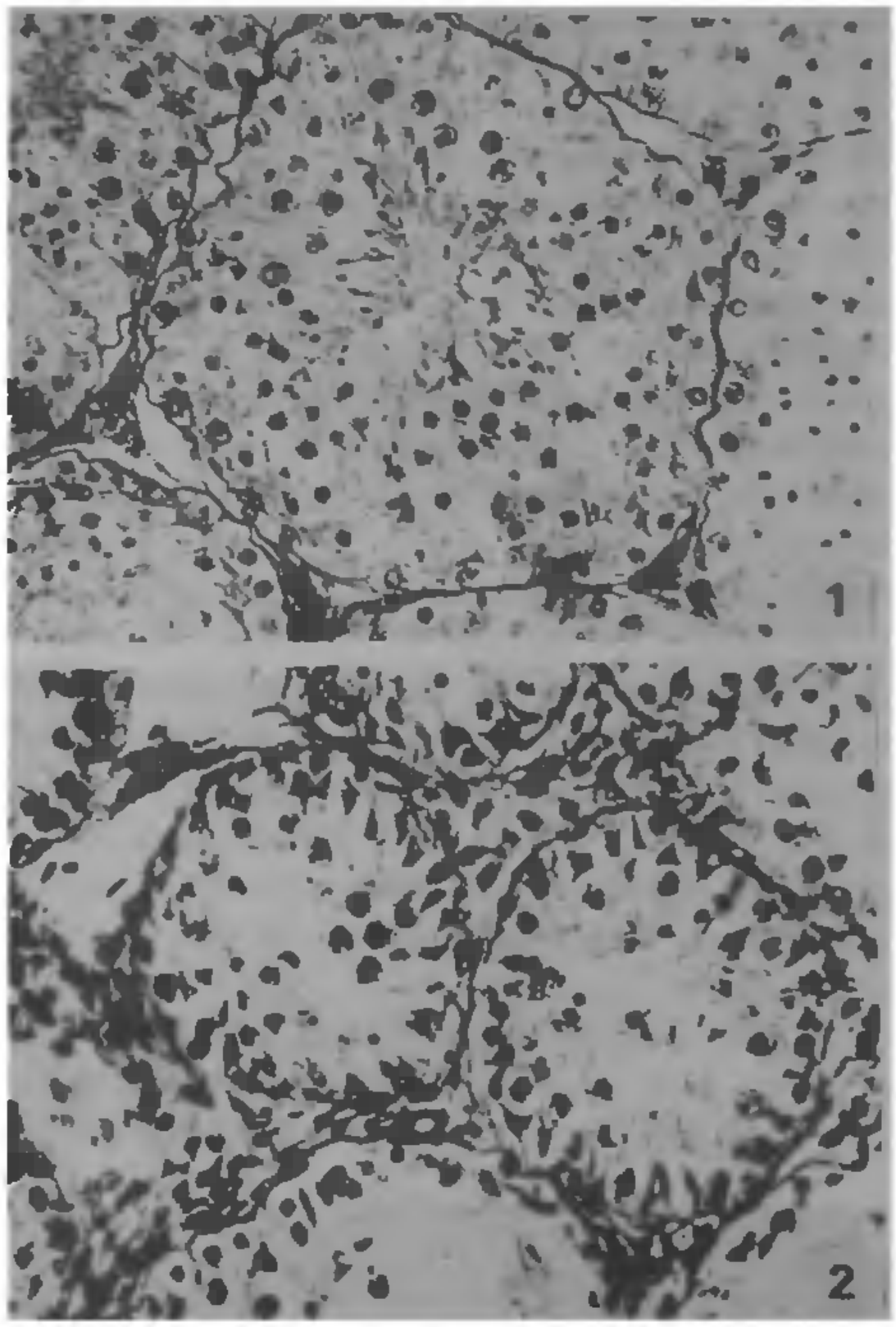
Malvaviscus conzattii Greenum is an ornamental plant. It belongs to the family Malvaceae. Gossypol is a coloring matter present in the cotton-seed and is responsible for causing infertility in animals such as rat[1], langur monkey[2] and humans[3]. In this investigation malvidin chloride—the coloring pigment of the flowers of *M. conzatii* Greenum was tested in male langur monkeys for antifertility activity.

Ten adult male langur monkeys (*Presbytis entellus entellus*) weighing between 14 and 17 kg were quarantined for two months. The animals were housed in metallic cages and were fed on wheat chapaties, vegetables and soaked grams. Water was provided *ad libitum*. The animals were divided into two groups of five each for experimental and control groups. Malvidin chloride $C_{17}H_{15}O_7Cl$ (3,5,7,4′-tetrahydroxy-3′,5′-dimethoxy flavylium chloride) was isolated from the flowers of *M. conzattii* Greenum as described elsewhere[4]. The compound malvidin chloride was incorporated in a fruit like banana or chikoo and fed to langur monkeys of experimental group at a dose of 50 mg/kg body weight/day for 60 days.

After 24 h of the last dose, bilateral biopsy of each animal was performed under Nembutal anaesthesia (25–30 mg/kg; body weight; i.v.) under aseptic conditions. The testes and epididymides were surgically removed, cleared of fat and connective tissue. After weighing, the tissues were fixed in Bouins fluid and processed for histological preparation. Paraffin sections of 6 μm of the testes were stained with hematoxylin and eosin.



Figures 1 and 2. **1.** Testis of control langur monkey showing all the stages of spermatogenesis (×200 HE), and **2.** Testis of malvidin chloride treated langur monkey (×200 HE). Note the impairment of spermatogenesis and atrophy of spermatogenic elements.

For histometric observations 100 seminiferous tubules were traced with camera lucida at ×80. Two perpendicular diameters of each tracing were meas-

Table 1 *Effect of malvidin chloride on sexual organs of male langur monkeys (Presbytis entellus entellus)*

Group	Body wt (kg)		Testes wt (mg/kg)	Epididymides wt (mg kg)	Seminiferous tubule diameter (μm)	Leydig cell nuclear diameter (μm)
	Intial	Final				
Control	15.5 ± 1.4	15.1 ± 1.8^{NS}	306 ± 17	66 ± 11	186 ± 9	10.0 ± 0.2
Malvidin chloride fed 50 mg kg	14.9 ± 1.5	14.3 ± 1.1^{NS}	193 ± 11^{b}	49 ± 9^{a}	103 ± 6^{b}	7.8 ± 0.3^{b}

Values are mean ± SE; $n = 5$ in each group, $^{a}P \leq 0.05$; $^{b}P \leq 0.01$; NS = Not significant

ured, averaged and expressed in terms of mean tubular diameter. Similarly 50 Leydig cells nuclei were measured. The standard errors of the mean values were calculated. Student's *t* test was applied for statistical significance.

The langur monkeys were in good health throughout the period of investigation. The body weights remained unchanged in the treated langur monkeys when compared with the controls. The malvidin chloride treatment caused a decrease in the weights of the testes ($P < 0.01$) and epididymides ($P < 0.05$) (table 1). Definite changes in the form of degeneration in the seminiferous tubules and atrophied Leydig cells in testes were present in langur monkeys fed with malvidin chloride (figure 2). Furthermore, there was a decrease ($P < 0.01$) in the seminiferous tubules and Leydig cells nuclei diameter (table 1). The seminiferous tubular lumen was filled up with desquamated cells and the debris (figure 2). This investigation reveals definite impairment of the spermatogenesis in langur monkeys fed with malvidin chloride (50 mg/kg body weight) for 60 days.

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1. Hoffer, A. P., *Biol. Reprod.*, 1983, **28,** 1007.
2. Bhargava, S. K., *Arch. Androl.*, 1984, **13,** 199.
3. Liou, G. Z., *Reproduction*, 1981, **5,** 189.
4. Bhargava, S. K., *Plant Med. Phytother.*, 1987, **21,** 14.

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