

ANTIFERTILITY EFFECT OF *LINDENBERGIA INDICA* (70% EtOH) EXTRACT**Ashok Purohit, Surendra K. Vyas**Reproduction physiology section, Department of Zoology, J.N. V. University,
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ABSTRACT: Oral feeding of 70% EtOH extract of *Lindenbergia indica* to female rats at the dose of 500 mg/kg body weight and 1000 mg / kg body weight caused significant reduction of serum cholesterol, HDL – cholesterol, triglycerides & phospholipids ($P \leq 0.05$ to $P \leq 0.001$). Where as the protein levels were not reduced significantly.

Fertility test showed 100% negative results. The negative fertility reflects the arrest of Oogenesis & depletion of estrogen level. Further *Lindenbergia indica* reflects antiestrogenic nature.

INTRODUCTION

Lindenbergia indica Linn. Commonly known as “Pindru” belongs to the family “Scrophulariaceae”. It is a small genus of annual or perennial herb. It is distributed throughout tropical Asia and Africa and in India seven species are recorded.

Lindenbergia indica is an indigenous drug used as a chronic bronchitis externally in skin eruption in combination with the juice of coriander (1-2). A number of terpenoids isolated from this plant, some of which showed cytotoxicity against human cancer cell lines (3). But no work was done on the reproduction site.

So the present study is aimed to assess the ant fertility effect of *Lindenbergia indica* (70% EtOH) extract in female rats with a view to develop a contraceptive oral agent for female human beings.

MATERIALS AND METHODS

20 mature female albino rats weighing about 150 to 200 g maintained on standard diet

(Hindustan lever Ltd., Bombay) and water ad libitum were distributed into 3 groups. First group (Gr. A) served as control, second group (Gr. B) received *Lindenbergia indica* (70% EtOH) extract at the dose of 500 mg/kg body weight and third group (Gr.C) received *Lindenbergia indica* (70% EtOH) extract at the dose of 1000 mg/kg body weight orally for 30 days.

The treated females were kept with the fertile male rats in the ration 1:2, from 25th to 30th day of treatment. Everyday the vaginal smear was taken and observed the estrus phases in the female rats. The vaginal plug and the presence of sperms in the vaginal smear was a proof of successful mating. Then the mated female were separated for recovery and observed the implantation sites on day 16th day of pregnancy through lapotomy. The fertility test was assessed (4) on the last day of treatment, animals were sacrificed by using light ether anaesthesia. Blood was directly collected from the heart. Serum was separated and lipid profile i.e Cholesterol

(5), HDL – Cholesterol (6), Phospholipid (7), Triglycerides (8) and Protein (9) were done.

RESULTS

Oral feeding of *Lindenbergia indica* (70% EtOH) extract at the doses of 500 mg/kg & 1000 mg/kg body weight orally for 30 days to female rats caused significant reduction in serum lipid profile ($P \leq 0.05$ to $P \leq 0.001$). It also showed 90 – 100% negative fertility (Table – I).

DISCUSSION

Cholesterol is an important precursor in the synthesis of steroid hormones (10). Decreased levels of cholesterol in treatment group may be attributed to the diminished biosynthesis of total cholesterol and increased secretion of bile acid (11). Which leads into estrogen depletion and caused

impairment of Oogenesis. Increase or decrease in serum HDL – Cholesterol (Lipoprotein) is closely related with the plasma estrogen (12). In the present study decreased in HDL – Cholesterol confirms the above findings. Triglycerides is said to be energy source for ova and its increase or decrease is suggestive of imbalancing synthesis (13). In present study reduced phospholipids may be due to impairment of its synthesis by plant product. Phospholipid contents have been implicated in ova maturation. The decrease in serum phospholipid in present study may be due to the change in the anabolism and catabolism of very low density lipoprotein (VLDL) by *Lindenbergia indica*.

In conclusion oral feed of *Lindenbergia indica* (70% EtOH) extract to female rats caused arrest of Oogenesis by depicting estrogen level.

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Table I: Serum Biochemical and fertility test of *Lindenbergia indica* (70% EtOH) extract treated intact rats (Mean of 6 Values \pm S.E.)

Treatment Groups	Fertility test	Protein mg/100 ml.	Cholesterol mg/100 ml.	HDL-Cholesterol mg/100 ml.	Triglycerides mg/100 ml.	Phospholipids mg/100 ml.
Intact (control) (Gr.1)	100% (+)	8.01 \pm 0.71	98.10 \pm 2.84	58.83 \pm 2.08	89.42 \pm 4.68	156.74 \pm 5.25
Intact + <i>L.indica</i> orally for 30 days Low dose (Gr.2)	90% (-)	8.55d \pm 0.61	80.13c \pm 1.62	46.83c \pm 1.62	74.23a \pm 3.63	89.94c \pm 3.48
Intact + <i>L.indica</i> orally for 30 days High dose (Gr.3)	100 % (-)	8.30d \pm 0.08	75.15c \pm 2.74	44.27b \pm 3.55	64.76b \pm 4.12	80.16c \pm 3.69

Gr.2 and 3 were compared with Gr.1

P<0.05 = a

P<0.01 = b

P<0.001 = c

P<n.s. (non-significant) = d