

# CONTRCEPTIVE EFFICACY OF ETHANOLIC EXTRACT OF *Lygodium flexuosum* ON MALE WISTAR RAT.

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**Key words:**, *Lygodium flexuosum* ethanolic, antifertility, contraceptive

**Abstract:-** Men also can contribute in the family planning the way women does. Research for the evolution of safe, acceptable, cheap, effective and reversible antifertility agent of plant origin is progressing worldwide. The present investigation deals with contraceptive efficacy of *Lygodium flexuosum* with its ethanolic extracts on the Wistar rat against control.

The investigation involves the treatment of sexually matured male Wistar rat with ethanolic extracts of *Lygodium flexuosum* at the dose regimen of 50mg/kg of animal for 60 days. The comparative results revealed that weights in gonads and accessory reproductive organs were found to be decreased with decrease in protein content of tissues and serum along with decrease in the value of adrenal ascorbic acid in adrenals. The treated group showed reduction in the serum cholesterol and increase in testicular and adrenal cholesterol. The total sperm count was also found to be much reduced in the treated group in comparison with control group. No adverse effects were observed on general body weight and on hematological parameters. Marginal variations were observed in cholesterol and protein content in vital organs but were within normal range. Histological structure of gonad and accessory reproductive organs provides concrete proof towards more antifertility effect in treated group. Normal histology was observed in all the vital organs studied.

## Introduction:-

The promising studies on various plants and their parts have been conducted by various researchers for antifertility. The reason behind selecting plant *Lygodium flexuosum* is its ethnobotanical value. There are many compounds have been noted in the plant like drayocrassal, tectoquinone, kaempferol and stigmasterol (Achari *et al*; 1986). The tribal communities are using this plants since long on gonorrhoea, spermatorrhea, wound healing, headache, migration, pain killer eczema (Dhiman 1998, Vasudeva 1999, Gogoi 2002, Hota and Padhi 2003). *Lygodium flexuosum* is Malaysian native species of pteridophyte shows presence of antifertility constituent. (Gaitonde and Mahajan 1980).

Though the ethnobotanical uses of *Lygodium flexuosum* have been studied well investigations on contraceptive efficacy have not been revealed in detail. So the present investigation contribute the antifertility efficacy of the same.

## Materials n methods:-

Sexually matured Wistar male rat aged between 8 to 10 weeks and approximately 250 to 300 gms body weight were selected for experiment and orally fed with dose regime 50mg/kg animal body weight. Animals were divided into two groups

Group I.....Control.

Group II..... plant extract treated (Test)

Total tissue and serum protein was carried out by Biurets method.

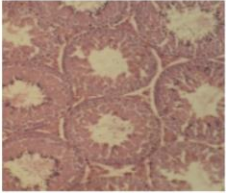
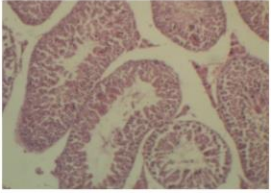
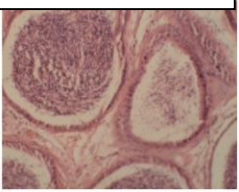
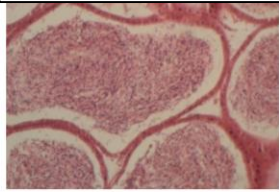
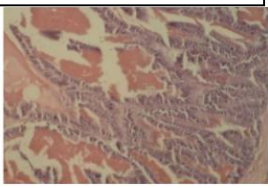
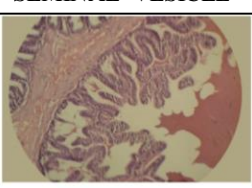


Total serum and tissue cholesterol was carried out by Wybenga Pillegi method.

Adrenal ascorbic acid was estimated by 2,4 DNPH (2,4-dinitrophenylhydrazine) method.

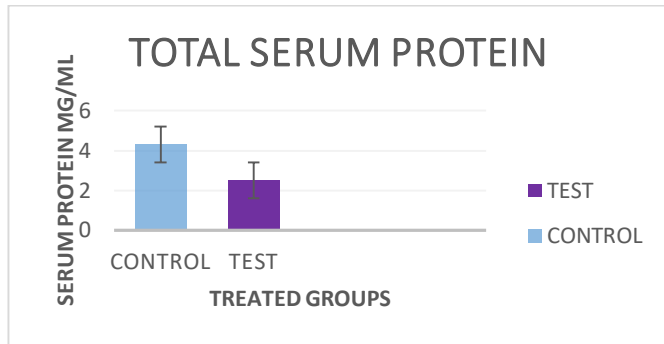
Total RBCs and WBCs were carried out by Lynch *et. al.* method.

Haemoglobin was done by Sahlis Haemocytometer.

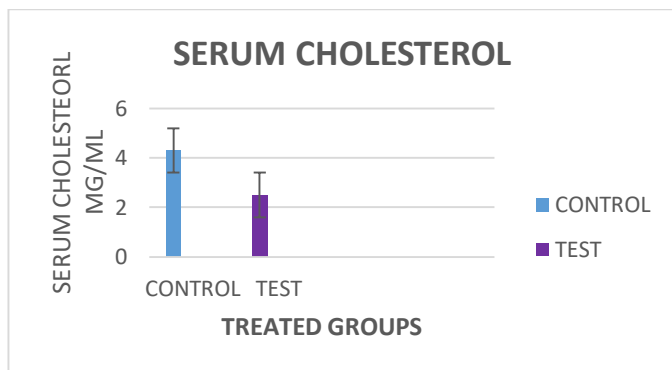
**OBSERVATIONS AND RESULTS OF HISTOLOGY:-**

CONTROL	PLANT EXTRACT	DESCRIPTION
 <p data-bbox="177 253 339 293">TESTIS</p>	 <p data-bbox="719 253 818 293">TESTIS</p>	<p>Histoarchitecture of testis showed disorientation and spaces in the tubular lumen of plant extract treated test group while control group showed normal histology.</p>
 <p data-bbox="169 629 328 674">CAPUT EPIDI.</p>	 <p data-bbox="595 629 754 674">CAPUT EPIDI.</p>	<p>Histology of cauda epididymis showed disorientation and shrunken tubular debris in plant extract treated test group while control group showed normal histology.</p>
 <p data-bbox="169 999 384 1032">SEMINAL VESICLE</p>	 <p data-bbox="587 999 815 1032">SEMINAL VESICLE</p>	<p>Histology of seminal vesicle showed disintegrated and degenerated tissue debris in the test group whereas control group showed normal histology.</p>
 <p data-bbox="188 1379 376 1413">VAS DEFERENS</p>	 <p data-bbox="603 1379 799 1413">VAS DEFERENS</p>	<p>Histology of vas deferens showed shrunken tubule with collapsed debris where control group has normal histology.</p>

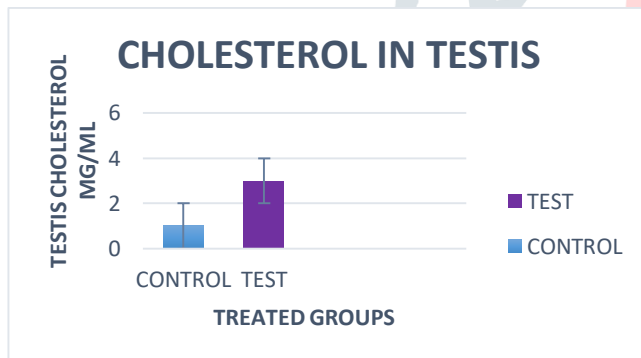
**OBSERVATIONS AND RESULTS OF BIOCHEMISTRY :-**



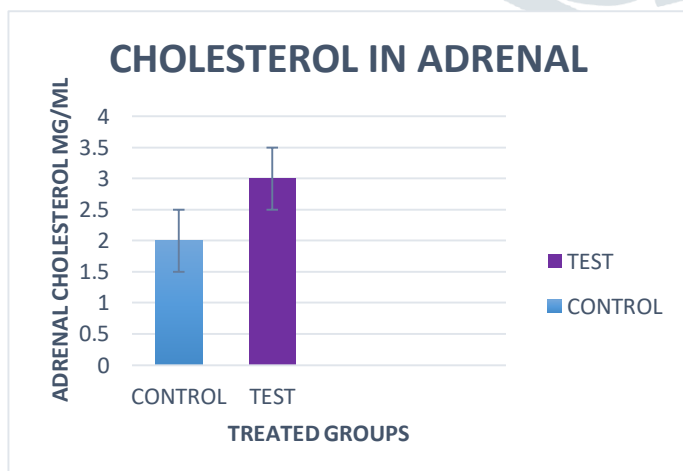
Total protein content in the serum is found to be decrease significantly in the plant extract treated group as compared to the control group



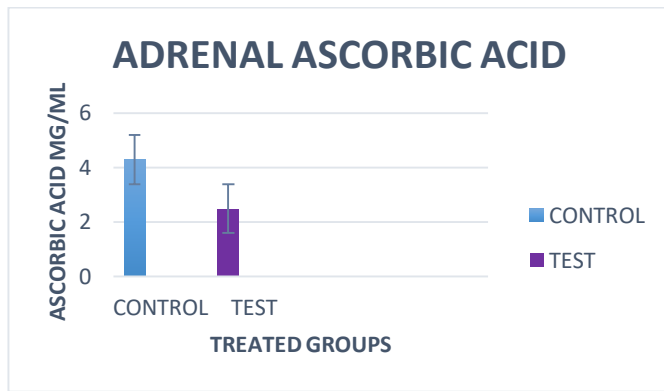
Total serum cholesterol is found to be significantly decreased in the test in comparison to the control group.



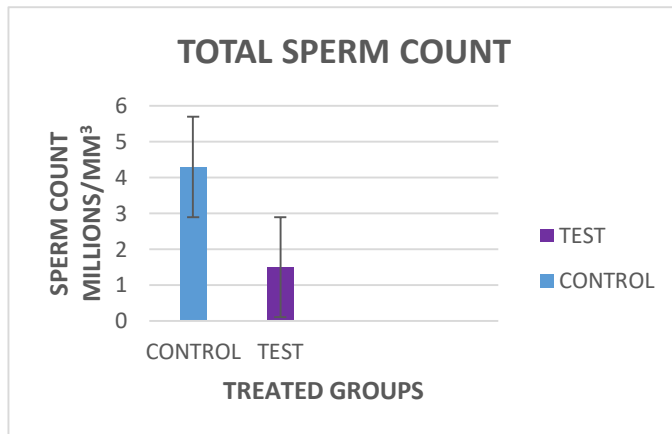
Total cholesterol is found to be significantly increased in the test group as compared to control group.



Total adrenal cholesterol is found to be increased in plant extract treated group in comparison to treated group but it was within the normal range.



Adrenal ascorbic acid in test group is found to be significantly decreased in comparison to control.



Total sperm count in test group is found to be decreased significantly in comparison to control group.

### Discussion and conclusion:-

Protein is the most important biochemical parameter to the steroidogenesis and spermatogenesis.

In current investigation the reduction in protein content was observed in testes, caput epididymis, cauda epididymis and seminal vesicle in plant extract treated group and maximum reduction was observed in total serum protein in plant extract treated group. This might have hampered the activity of hormones hence the histological variations were noticed in the plant extract treated group more prominently in comparison with vehicle treated group i.e. control. Eg. reduction in the size of the seminiferous tubule, degeneration of cells, disorientation of cells and tubule, spermatozoon debris, shrinking of tubule etc. Reduction of cholesterol in the serum can be consider as the one of the important factor affecting histoarchaetecture of the plant extract treated group abruptly.

The present investigation also showed that plant extract treated group possess maximum alteration in the cholesterol level due to the accumulation of cholesterol in the reproductive organs but in liver, adrenal and heart when measured were found in normal range since the serum cholesterol of treated experimental group showed maximum increment which showed that *Lygodium flexuosum* plant extract are free from visible toxicity. Reduction in adrenal ascorbic acid was observed very specifically in the plant extract treated group.

Toxicological study revealed that drug did not have any kind of adverse effect on the body weight, haematological parameters, vital organ functioning etc.

Maximum reduction in the total sperm count found in plant extract treated group as compared to control group. This suggests that extract of *Lygodium flexuosum* shows most prominent antifertility effect in Wistar rat.

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