Antifertility activity of *Walsura Piscidia Roxb* leaf extract on male rats

Afsar Shaik¹,², Prasanna Raju Yalavarthi³, Chadrasekhar Kothapalli Bonnoth⁴

¹Faculty of Pharmaceutical Sciences, JNTUA, Ananthapuramu-515002, Andhra Pradesh, India
²Department of Pharmacology, Narayana Pharmacy College, Chinthareddypalem, SPSR, Nellore-524003, Andhra pradesh, India
³Department of Pharmaceutics, Sri Padmavathi School of Pharmacy, Tirchanoor, Tirupathi-517503, Andhra pradesh, India
⁴Department of Chemistry, Director Foreign Affairs and Alumni Matters, JNTUA, Ananthapuramu-515002, Andhrapradesh, India

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**ABSTRACT**

The main aim of the present study was to estimate the fertilization parameters in male rats by using methanolic leaf extract of *Walsura Piscidia*. The animals were divided into three groups of five animals each. The first group (I) served as control and received normal saline remaining Groups (II & III) were treated with plant extract at a dose of 200 & 400 mg/kg p.o. Respectively for a period of 21 days. Dose-dependent significant decrease in the weight of testes & epididymis was observed. Also, a dose-related reduction in sperm count and motility was observed. In conclusion, the methanolic leaf extract of *Walsura Piscidia* has produced dose-dependent antifertility effect on male rats.

**INTRODUCTION**

The current world is dealing with the hindrance of the population of about 6.5 billion, and presently, the Indian population is measuring around 1.1 billion. The rapid expansion in the growth of population is showing negative impacts on the socioeconomic welfare of many developing countries. Moreover, the population control measures adopted by many countries are dealing with major financial and strategic issues (Negi et al., 1994). Hence it makes mandate to develop suitable and safe means of policies for control over-fertilization. Even though enough number of oral contraceptive medicines is available for controlling fertilization, these measures are dealing with a questionable side and adverse effects. The majority of oral contraceptives is synthetic in origin and made of hormonal preparations, which makes and place them in the higher risk of side effects. Hence, the majority of people now a day’s are thinking back towards the ancient treatment methods by using herbal preparations (Sathiayaraj et al., 2010).

These days the majority of research work is carried on herbal medicines in order to find out their pharmacological potencies. Hence in this present study, the main aim was to carry out an evaluation of the anti-fertility activity of *Walsura Piscidia Roxb*.
traditionally claimed to possess medicinal properties such as Stimulant, Emmenagogue and emetic. Despite the traditional uses the plant is not scientifically tested and approved for its uses. Hence, the present work focuses on exploring scientific evidence to prove its antifertility potentials.

**MATERIALS AND METHODS**

**Plant material**

*Walsura Piscidia* Roxb leaf was collected from Tirupathi and was authenticated Dr C. Madhava Chetty (botanist). After collection, the leaves were properly washed with distilled water and air-dried. The later extract was of the plant was prepared by using 70% methanol by soxhlation using soxhlet apparatus.

**Animals**

Adult male healthy Wistar rats weighing around 150 to 200 g were selected and properly placed in polypropylene cages.

**Experimental Model**

The experimental design and treatment schedule is, as shown in Table 1.

**Monitoring Parameters**

**Whole-body and organ weights**

In order to note the total body weight of the animal, all the animals were weighed before the treatment. The various organs like testes, epididymides were weighed.

**Sperm count and motility**

For counting number of sperms 1 drop of sample, the solution was placed on a glass slide and closed with placing cover slip. The Sperm motility was measured by counting both mobile and immobile spermatozoa per unit area.

**Statistical analysis**

All the data was expressed as mean ± SEM. Statistical significance between two and above groups were tested by using one way ANOVA method followed by Tukey test using Prism graph pad.

**RESULTS AND DISCUSSION**

**Body and organ weights**

After the completion of the treatment schedule, the animals has shown increased body weights when compared to their initial weights. The organs like testes and epididymis weight were markedly decreased. The obtained body and organ weights are as shown in Table 2.

**Sperm Count & motility**

The percentage sperm motility of group II & III were markedly decreased when compared to group I. The data related to perm count and motility is as shown in the Table 3.

The results obtained from the current study states that the leaf extract of *W. Piscidia* may significantly modify fertility potentials in male rats. The results obtained and observed from the current study has shown significant suppression of epididymal & testicular sperm count (Mali et al., 2002). Moreover, the marked increase in body weights may be resultant of the toxic effects of the extract on rats. “The significant in the weight of testes and epididymis could be, therefore, due to increased androgen synthesis as evidence serum testosterone level” (Morakinyo et al., 2008). Oxidative stress may also be one of the possible effects for reducing sperm concentration (Ewing et al., 1980).

Additionally, the fact that sperm motility & mobility are the markers of healthy fertilization any means on the negative effect on these parameters may results in serious affect on fertility ability (Ghosh et al., 2002). Hence, the marked decrease in sperm motility & count by the leaf extract of *W. Piscidia* strongly proves the antifertility effects of the extract.

**CONCLUSIONS**

In conclusion, the methanolic leaf extract of *W. Piscidia* pocess a strong dose-dependent negative effects on male fertilization. Further, an extensive evaluation of complete reversible fertility should be done on this particular important plant.

**REFERENCES**


Table 1: Treatment Schedule

<table>
<thead>
<tr>
<th>S.No</th>
<th>Group</th>
<th>Drug Administered</th>
<th>Duration of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Group I</td>
<td>Distilled water</td>
<td>21 days</td>
</tr>
<tr>
<td>2</td>
<td>Group II</td>
<td><em>W. Piscidia</em> (200 mg/kg)</td>
<td>21 days</td>
</tr>
<tr>
<td>3</td>
<td>Group III</td>
<td><em>W. Piscidia</em> (400 mg/kg)</td>
<td>21 days</td>
</tr>
</tbody>
</table>

Table 2: Body and organ weights after 21 days of treatment with methanolic leaf extract of *W. Piscidia*.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Treatment groups</th>
<th>Body weights (gm)</th>
<th>Testes Wt.</th>
<th>Epididymis Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Initial</td>
<td>Final</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Group I</td>
<td>189 ± 7.5</td>
<td>236 ± 13.0</td>
<td>107.2 ± 0.66</td>
</tr>
<tr>
<td>2</td>
<td>Group II</td>
<td>187 ± 11.4</td>
<td>255 ± 11.3</td>
<td>83.6 ± 0.82</td>
</tr>
<tr>
<td>3</td>
<td>Group III</td>
<td>195 ± 9.5</td>
<td>297 ± 11.6</td>
<td>63.4 ± 0.65</td>
</tr>
</tbody>
</table>

Data are expressed as mean ± S.D., mg/100g of body weight, P< 0.01 compared with corresponding initial body weight.

Table 3: Spermmorphology after 21 days of treatment with methanolic leaf extract of *W. Piscidia*.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Treatment groups</th>
<th>Sperm motility count (%)</th>
<th>Sperm count (million/mm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Testes</td>
<td>Cauda epididymis</td>
</tr>
<tr>
<td>1</td>
<td>Group I</td>
<td>57.3 ± 2.2</td>
<td>4.4 ± 0.3</td>
</tr>
<tr>
<td>2</td>
<td>Group II</td>
<td>34.5 ± 7.3</td>
<td>2.5 ± 0.4</td>
</tr>
<tr>
<td>3</td>
<td>Group III</td>
<td>32.4 ± 4.8</td>
<td>1.7 ± 0.8</td>
</tr>
</tbody>
</table>

Data are expressed as mean±S.D., n =5, P < 0.01 Compared with group I.