Pharmacological Studies for Investigation of Antihelmintic Activity of *Paspalidum flavidum* Against Adult Indian Earthworm *Pheritima posthuma*

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**INTRODUCTION**

Helminthes, also commonly known as parasitic worms are large multicellular organisms, which when mature can generally be seen with the naked eye. They are often referred to as intestinal worms even though not all helminths reside in the intestines; for example Schistosomes are not intestinal worms, but rather reside in blood vessels. Soil-transmitted helminthiasis (SHT) and schistosomiasis are the most important group of helminthiasis, collectively belonging to the "neglected tropical diseases"[1]. Soil-transmitted helminthiasis is responsible for parasitic infections in a quarter of the total human population [2]. *Paspalidum flavidum* (water crown grass) is a genus of tropical and subtropical plants in the grass family. It is commonly known as Grass. The name of *Panicum flavidum* is its synonym. A wild, annual to perennial grass, with decumbent-ascending culm and rooting at lower nodes. Leaves: 1-105 cm broad. Ligule a ring hairs. Sheaths with a hairy throat. Panicle: faciiform, recurved, with 5-10 remote racemes, upto 60 cm long. Spikelets: 2-nate, subsessile and ellipsoid [3-5]. Anthelmintics or antihelminthics are drugs that expel parasitic worms (helminths) and other internal parasites from the body by either stunning or killing them and without causing significant damage to the host. Albendazole was used as standard. Result indicates methanolic extracts of *P. flavidum* significantly (p<0.01) exhibited antihelmentic activity in dose dependent manner when compared with standard. The shortest time required for paralysis and death was observed with concentration of 100 mg/ml. Further studies are under progress to confirm the possible chemical constituents responsible for a activity.

**KEYWORDS**

*Paspalidum flavidum*, Anti-helmentic, *Pheritima posthuma*

**ABSTRACT**

The present research program was carried out to investigate the antihelmintic activity of the aqueous and methanolic extract of *Paspalidum flavidum* against adult Indian earthworm *Pheritima posthuma*. Various concentrations (25, 50 and 100 mg/ml) of methanolic extract evaluated for antihelmintic activity by recording the time required for paralysis and death of worms. Albendazole was used as standard. Result indicates methanolic extracts of *P. flavidum* significantly (p<0.01) exhibited antihelmentic activity in dose dependent manner when compared with standard. The shortest time required for paralysis and death was observed with concentration of 100 mg/ml. Further studies are under progress to confirm the possible chemical constituents responsible for a activity.

**KEYWORDS**

*Paspalidum flavidum*, Anti-helmentic, *Pheritima posthuma*
MATERIALS AND METHODS

Collection and authentication

*P. flavidum* were collected from Narsapur, Medak District and authenticated by D. Venkateshwara Rao, Deputy Director, A.P. Forest Academy, Dullapally, Hyderabad, Ranga Reddy Dist.

Preparation of plant material

The plant leaves were washed under running tap water to make it free from dust and foreign particles. The plant leaves were powdered and kept in an air tight container before analysis.

Preparation of methanolic extract

50 gm of powder was soaked in a 300 ml of methanol, heated at 20-30°C for 20 min and filtered using (Whatman filter paper No. 1) filter paper. The filtrate was centrifuged at 2000 rpm for 20 min and analyzed by antihelmentic activity.

Selection of worms

Adult Indian earthworms, *P. posthuma* having anatomical and physiological resemblance with intestinal roundworm parasite of the human being. So *P. posthuma* were used for present study [10].

EVALUATION OF ANTIHELMENTIC ACTIVITY

The antihelmentic activity was evaluated on adult Indian earthworm, *P. posthuma*. Standard concentrations of albendazole (25, 50 and 100 mg/ml) were prepared by dissolving in normal saline. The methanolic leaf extract of *P. flavidum* extract was dissolved in normal saline at the concentrations of 25, 50 and 100 mg/ml. 50 ml of saline was taken as control. 5 earthworms were placed in each beaker containing concentrations of standard, leaf extract and control respectively. The paralytic time and death time were noted. Death time was noted only when worms lost their motility. The readings was compared with the standard drug albendazole at concentrations of 25, 50 and 100 mg/ml showed closest result with that of standard drug albendazole (Figure 1).

RESULTS AND DISCUSSION

Experimental data showed that, the methanolic extract of *P. flavidum* has antihelmentic activity in dose dependent manner as shown in Table 1. The shortest time required for paralysis and death was observed with concentration of 100 mg/ml. Higher concentration of methanolic extract showed maximum effect when compared with lower concentration.

![Figure 1: The readings was compared with the standard drug albendazole at concentrations of 25, 50 and 100 mg/ml showed closest result with that of standard drug albendazole.](image)

**Table 1:** The methanolic extract of *Paspalidum flavidum* has antihelmentic activity in dose dependent.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Treatments</th>
<th>Concentration (mg/ml)</th>
<th>Paralysis time (min)</th>
<th>Death time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>Vehicle (Normal saline)</td>
<td>25</td>
<td>52.14 ± 1.37</td>
<td>73.21 ± 1.36</td>
</tr>
<tr>
<td>Group II</td>
<td>Methanolic extract (<em>Paspalidum flavidum</em>)</td>
<td>50</td>
<td>37.25 ± 1.36</td>
<td>65.43 ± 0.32</td>
</tr>
<tr>
<td>Group III</td>
<td></td>
<td>100</td>
<td>19.24 ± 1.49</td>
<td>60.15 ± 0.90</td>
</tr>
<tr>
<td>Group IV</td>
<td></td>
<td>25</td>
<td>34.33 ± 0.84</td>
<td>60.83 ± 1.15</td>
</tr>
<tr>
<td>Group V</td>
<td>Albendazole</td>
<td>50</td>
<td>25.10 ± 1.65</td>
<td>49.45 ± 1.72</td>
</tr>
<tr>
<td>Group VI</td>
<td></td>
<td>100</td>
<td>14.32 ± 0.57</td>
<td>26.31 ± 0.81</td>
</tr>
</tbody>
</table>

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CONCLUSION

Antihelmentics are drugs that expel parasitic worms (helminths) from the body, by either stunning or killing them (Dwivedi et al., 2000). Moreover, these drugs are unaffordable because of their high cost. These factors saved the way for herbal remedies as alternative antihelmentics. In present study of whole plant extract of *P. flavidum* was selected and studies for its antihelmentic activity and the experimental results concluded that *P. flavidum* extract showed significant antihelmentic activity.

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Conflicts of interest

There are no conflicts of interest.

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