The aim of present study was the evaluation of anthelmintic activity of *Wendlandia thyrsoida* leaves extracts in experimental adult earthworm’s *Pheretima posthuma*. The leaf powder was initially defatted with pet ether followed by successive extraction with methanol and water, both the extracts were screened for anthelmintic activity. The results revealed that the plant extracts showed dose dependent manner anthelmintic activity and it has been found that the methanol extract of leaves showed better activity than the aqueous extracts against tested earthworms.

**Key words:** *Wendlandia thyrsoida*. Phytoconstituents. Anthelmintics. *Pheretima posthuma*

**INTRODUCTION**

Helminths infections are among the most widespread infections and the majorities of infections due to helminths are generally restricted to tropical regions, but can occur to travelers who have visited the those areas and some of them can be developed in temperate climates [1,2]. Helminths infections cause enormous hazard to health and contribute to the prevalence of undernourishment, anemia, eosinophilia and pneumonia in human beings. The modern synthetic medicines are effective in treatment of helminths infection, but they cause a number of side effects. Moreover, gastro-intestinal helminths becomes resistant to currently available anthelmintic drugs and is urgent to need for the search of new drugs which have effective against helminthes diseases with minimal side effects. Despite this tendency, some pharmaceutical companies have begun to refocus their efforts on synthetic molecules as well as in the search for molecules derived from natural sources found in plants of tropical forests and organisms found in the deep sea environment. Rubiaceae family is a large family of 630 genera and have 1300 species found throughout the word. Rubiaceae family are of great medicinal value and are several ailments like ulcers, dysentery, athlete's foot, diabetes, whooping cough, bronchitis, asthma, migraine etc. are successfully cured by the use of plants. Some plants of family rubiaceae are of miraculous importance which are used in treatment of snake bite [3], scorpion sting, regulation of menses, securing the birth of male child, diarrhea and intestinal parasites [4], hypertension, cardiovascular dysfunctions, mental disturbs and alimentary disorders [5]. Rubiaceae family member plants have biologically active and have potential antimicrobial [6], antioxidant [7], antidiabetic [8], anticancer [9], cardiovascular [10], anthelmintic [11], anti-inflammatory [12], Analgesic [13], Antimycobacterial [14], Antinociceptive [15], Anti-asthmatic [16], Anti-Mitotic [17], Insecticidal [18] and Anti-mutagenic activity [19]. The plant *W. thyrsoida* belongs to the family rubiaceae and the plant is commonly known as Neeru pale in kannada, Kadambam in Tamil, Pekanarakam in Malayalam and Showla in Marathi. The plant is used in ethno medicine for the treatment of constipation, asthma, tooth ache, skin diseases and also this plant is used in the treatment of jaundice. Methanol extract of flowers of plant *W. thyrsoida* possess antioxidant and antimicrobial activity [20]. The successive extracts of pet-ether, ethyl acetate and methanol extracts of leaves of *W. thyrsoida* have antimicrobial and analgesic activity [21]. In the current study, we examined the Anthelmintic activity of leaves extracts of *W. thyrsoida* (R. & S.) Steud.

**MATERIALS AND METHODS**

**Collection and identification of plant**
The healthy leaves were collected from Haniya, Shivamogga (D), Karnataka, India. Authenticity of the plant was confirmed as *W. thyrsoides* by faculty of Department of Applied Botany, Kuvempu University, Shankaraghatta. A voucher specimen (KU/SD/HN115) was deposited in Department of Applied Botany herbarium, Kuvempu University.

**Preparation of plant extracts**

Leaves were separated from unwanted materials, brushed, shade, dried and powdered mechanically. 500 g of leaves powder was defatted using petroleum ether and sequentially extracted with distilled methanol and double distilled water in soxhlet apparatus. The extract was filtering through Whatmann No. 1 filter paper and concentrated at 40 °C in vacuum using rotary flash evaporator. The obtained residues were designated as *W. thyrsoides* methanol extract (WTME) and *W. thyrsoides* aqueous extract (WTAE) respectively and were stored in desiccators until further studies.

**In vitro Anthelmintic activity**

Live earthworms *Pheretima posthuma* of nearly equal size (6±1 cm) were collected from vermicomposting manufacturing farm. Worm type was identified at the Agriculture Research Station, Shivamogga, Karnataka. The worms were acclimatized to laboratory conditions for one week before experimentation. The *in vitro* anthelmintic assay was carried out as per the method of Ajayieoba with appropriate modifications [22]. The earthworms were divided into five groups of six each. Albendazole diluted with normal saline solution to obtain 1% (m/v) served as standard and Normal saline served as a control and are poured into Petri dishes. The extracts were dissolved in minimal quantity of tween 80 and diluted to prepare concentrations of 20 mg/mL of each extract. Paralysis was said to occur when the worms were not able to move even in normal saline. Death was confirmed when the worms lost their motility followed with fading away of their body colors. Death was also confirmed by dipping the worms in slightly warm water. The mortality of parasite was assumed to have occurred when all signs of movement had ceased. The time taken for complete paralysis and death was recorded.

**RESULT AND DISCUSSION**

**In vitro Anthelmintic activity**

The main advantages of using *in vitro* assays to screen the anti-parasitic properties of plant extracts are low costs and rapid turnover, which allow screening large number of plants. An additional advantage was that these tests measured the effect of anthelmintic activity directly on the processes of such hatching, development and motility of parasites without interference of internal physiological functions of the host on pharmaco dynamic and pharmacokinetic of the drug [23]. In the study, the effectiveness of drug was judged on the basis of loss of spontaneous movement of death of *Pheretima posthuma*. Anthelmintic activities of leaves extracts *W. thyrsoides* are represented in Table 1. The result revealed that, the WTME at the concentration of 20 mg/mL showed the time of paralysis and death at 83±1.54 and 168±1.86 min respectively, while the WTAE at the concentration of 20 mg/mL showed the time of paralysis and death at 65±1.32 and 145±1.946 min respectively. Among both the extracts WTAE was found to be more significant than WTME.

<table>
<thead>
<tr>
<th>Extracts</th>
<th>Time taken for</th>
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<tbody>
<tr>
<td></td>
<td>Paralysis (Min.)</td>
</tr>
<tr>
<td>WTME (20 mg/mL)</td>
<td>83±1.54</td>
</tr>
<tr>
<td>WTAE (20 mg/mL)</td>
<td>65±1.32</td>
</tr>
<tr>
<td>Albendazole* (1% m/v)</td>
<td>52±1.42</td>
</tr>
</tbody>
</table>

*standard: Each value represents mean±SEM, Where, n= 3.

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REFERENCES

