Investigation on the Chloroform And Ethanol Extract Of *Ficus Religiosa* Leaves Against Helminthes

Pankaj Nainwal

**Abstract** — The present study is to investigate the investigation of potency of phytoconstituent against helminthes using the chloroform and ethanolic extracts of leaves of commonly occurring plants *Ficus religiosa* and screen for its in-vitro anthelmintic activity in order to estimate the most potent as compared with standard drugs. The study was done on identical sized *Pheretima posthuma* by calculating paralyzing time and cidal time of the extracts. Both the extracts were found not only to paralyze (Vermifuge) but also to kill (Vermicidal). Results revealed that Chloroform and ethanolic extract of leaves of *F. religiosa* are more potent in the test worms (*Pheretima Posthuma*) when compared to standard albendazole and piperazine.

**Keywords:** Anthelmintic activity, *Ficus religiosa*, *Pheretima posthuma*, paralyze, vermicidal, albendazole, piperazine

1 **INTRODUCTION**

Medicinal plants used as a constant source of medicament for the experiencing a variety of diseases from long years back. The plant sources are known to supply a rich source of metabolites used for various medicinal purpose [1]. Some of the plants having potential to treat cancer, some having potential to treat liver disease and so on [2]. Problem of helminthiasis grows more in children and labour class people who actually exposed to earthen matter for long [3]. Soil helminthes infection is found most common infection in children and adults which is infected by a parasitic worm. Helminthic infections actually a major reason of morbidity and mortality worldwide and are well-known among the so-called neglected tropical diseases [4]. *Ficus religiosa*, also known as bodhi tree, pipal tree, belongs to family *Moraceae*, worshiped in Indian continent as a god of tree, possess lot of traditional and medicinal value [5]. Whole part of plant is used for treatment of various ailments. Ethnomedicinally the bark & leaves of this plant is used as an antibacterial, antiprotozoal, antiviral, astringent, antidiarrheal, in the treatment of gonorrhea, ulcers, skin diseases, in snake poisoning and in menstrual cycle [6]. In present study leaves extract (Chloroform and Ethanol) of *Ficus religiosa* were prepared to evaluate its potential against helminthes.

2 **MATERIAL AND METHODS**

2.1 **Collection and authentication**

The fresh leaves of *Ficus religiosa* was collected from the local areas of Dehradun, Uttarakhand and was authenticated in Botanical Survey of India, Uttarakhand.

2.2 **Preparation of extracts**

The leaves were kept for shade drying for 2 weeks and then kept in hot air oven at controlled temperature 45-50°C for fully drying. Mechanical grinders is used for powdering the leaves and powder is then proceed for size separation by using sieves of 18# and 22#. The coarse powder is selected for extraction. Chloroform and Ethanol was taken as solvent for extraction. 100 gms of powder drug was taken and thimble was made. Successive extraction was done via Soxhlation technique. The extract was distilled off at controlled temperature, solid mass of extract was obtained and it was than preserve in vacuum desiccator. The % yield of extract was found 1.67% from chloroform and 8.25% from ethanol.

2.3 **Phytochemical investigation**

The chloroform and ethanol extracts were then proceeded for investigating the presence of phytochemicals by using various identification tests.

2.4 **Preparation of Experimental animals**

*Pheretima posthuma* (Earthworms), adult, was used for studying anthelmintic activity. The earthworms were procured from moist farm soil, similar in morphology having 4-5 cm length with 2-3 mm of thickness. The selected earthworms were than washed with normal water to remove the earthen matter and prepared for experiment. As the *Pheretima* resembles anatomy and physiology of intestinal round worms hence these can be used in experiment. Piperazine and Albendazole were used as chemical in this experiment.

3 **PREPARATION OF EXPERIMENTAL ANIMALS**

The earthworms of identical length and width were used for...
all experimental protocol. The earthworms were divided into five groups containing six earthworms in each group. All the extracts and standard drug solution were freshly prepared in normal saline before starting the experiment [7]. The plant extracts and standard drug solutions were poured into petriplates. All the earthworms were freed into 10ml of formulation as follows: Chloroform, ethanol extract, piperazine and Albendazole in four different concentrations [8]. All the observations were made for the time taken to paralysis and death of worms. Time for paralysis was noted when no movement was observed except when the worms were shaken vigorously. Death was concluded when the worms lost their motility when dipped in warm water (55-60°C) followed with vanishing of their body colors [9].

3 RESULTS AND DISCUSSION

The phytochemical analysis on both extracts showed the presence of carbohydrates, flavanoids, aminoacids, steroids, saponins and tannins like phytococonstituents. Some of these phytococonstituents are responsible for anthelmintic activity (Table 1). It is evident from the observations that high dose of chloroform and ethanolic extract of leaves of F. religiosa shows paralysis at 1.1 min and 4.5 min respectively, while piperazine and albendazole at the same dose shows quick response within 58 & 42 seconds (Table 2). As per comparison of extracts with standards chloroform extract observe effective as compare to ethanolic extract.

<table>
<thead>
<tr>
<th>S.no.</th>
<th>Phytochemicals</th>
<th>Chloroform extract</th>
<th>Ethanol extract</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alkaloids</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>2</td>
<td>Glycoside</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>3</td>
<td>Flavonoids</td>
<td>+++</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>Carbohydrate</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>5</td>
<td>Tannins</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>6</td>
<td>Phenolics</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>7</td>
<td>Gums &amp; mucilages</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>8</td>
<td>Steroids</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>Saponins</td>
<td>++</td>
<td>++</td>
</tr>
</tbody>
</table>

+ present ; - absent

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Dose mg/ml</th>
<th>ANIMAL TREATMENT</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Paralytic time (min)</td>
<td>Death time (min)</td>
<td></td>
</tr>
<tr>
<td>Chloroform Extract</td>
<td>10</td>
<td>7.5 ± 2.121</td>
<td>12.6 ± 0.989</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>4.3 ± 1.102</td>
<td>8.6 ± 1.682</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>2.1 ± 0.432</td>
<td>5.3 ± 1.534</td>
<td></td>
</tr>
</tbody>
</table>

n=5 (n=no. of groups six animal each). Data performed using ANOVA

4 CONCLUSION

Helminths are called as a parasitic worms, are the most common infectious agents of humans in developing countries and produce a global burden of disease that exceeds better-known conditions, including malaria and tuberculosis [10,11]. It is evident from the findings of the present study that chloroform and ethanolic extracts of leaves of F. religiosa posses potent anthelmintic activity but when when compared both ethanolic extract was found to be least potent to chloroform extract. Future studies in this aspects using in vivo models which are required to carryout and establish the effectiveness and pharmacological rationale. As more precise phytochemical evaluations are also needed to lay down recommendation on scientific ground.

ACKNOWLEDGMENT

The author is highly thankful to Chancellor, Vice chancellor of Graphic Era hill university and Director, School of Pharmacy, Graphic Era Hill University, Dehradun UK, for providing research environment and all facilities for research.

REFERENCES


ISSN 2277-8616

IUSTRE®2020

www.ijsr.org

5771
Plants, Lucknow, India, CIMAP. 2002: 546.


