Analgesic and Antipyretic Activity of Extracts of Asclepias Curassavica Linn

Rajesh Kumar¹, Rakhi Mishra²* and Prem Shanker Mishra³

¹Department of Pharmacy, Kalka Institute of Research and Advanced studies, Meerut, Uttarpradesh, India.
²Department of Pharmacy, Translam Institute of Pharmaceutical Education and Research, Meerut, Uttarpradesh, India.
³MIET College of pharmacy, Meerut, Uttarpradesh, India.

ABSTRACT
The present study is concerned with the study of Asclepias Curassavica Linn for its Analgesic and Antipyretic activity. The main objective of this work is to develop Antipyretic and Analgesic agents having no or less side effects from this indigenous plant for the therapeutic management. Alcoholic and aqueous extracts of stem of the plant have been made and their analgesic and antipyretic activity have been observed on mice taking paracetamol as standard.

Keywords: Antipyretic, Analgesic, Therapeutic, Indigenous.

INTRODUCTION
Ayurvedic drugs are making a dent in international markets, which are look forward for alternate medicine for the cure of ailments to which even modern medicine has no answer¹. The plant kingdom still holds many species of plants containing substances of medicinal value, which are yet to be discovered². Herbal preparation are preferred nowadays due to their efficacy, low cost, easy availability and less side effects ³. They are prepared from a single plant or combination of more than one plant. Given study deals with phytochemical and pharmacological evaluation of stem of Asclepias curassavica Linn⁴. With special reference to anti-pyretic and analgesic activity in animal models ⁵⁻⁷.

Collection and Authentication of Crude Drug
The stem of plant of Asclepias curassavica Linn was collected from the hill of yercaude at Salem, Tamilnadu. The plant was then authenticated by a botanist Dr. Mohd. Sharif M.Sc., Ph.D, scientist of Botanical survey of India, Salem district.

PHARMACOLOGICAL STUDIES
Swiss albino mice (20-25 gm) and Wister rats (150 – 200gm) of either sex and of approximate same age were taken for the study. The animals received the standard and test drugs by oral gavage tube and subcutaneous route wherever applicable.

ANTIPYRETIC ACTIVITY
Pyrexia was induced by injecting, subcutaneously, 20% suspension of dried yeast in carboxymethyl cellulose at a dose of 20 ml/kg of body weight. After 18 h of yeast injection, rats which showed a rise in temperature of at least 1ºF (0.6ºC) were taken for the study. In all the cases the rectal temperature in ⁹ F was measured at 1 hr, 2 hrs and 3 hrs. The results were recorded and computed in table 1.
Table 1: Antipyretic Activity of Asclepias Curassavica

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Dose</th>
<th>Normal Rectal Temperature Mean±SEM</th>
<th>Rectal Temperature After Dose Administration at 0 min</th>
<th>Rectal Temperature After 1hrs</th>
<th>After 2hrs</th>
<th>After 3 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL SALINE</td>
<td>99.17±0.139</td>
<td>100.69±0.130</td>
<td>101.39±0.0878</td>
<td>101.536±0.105</td>
<td>101.60±0.105</td>
<td></td>
</tr>
<tr>
<td>PARACETAMOL</td>
<td>100mg/kg</td>
<td>99.08 ± 0.40</td>
<td>101.26 ± 0.095</td>
<td>101.18 ± 0.12</td>
<td>100.178±0.084</td>
<td>98.578±0.105</td>
</tr>
<tr>
<td>Alcoholic extract</td>
<td>200 mg/kg</td>
<td>99.22 ± 0.086</td>
<td>101.045 ± 0.0183</td>
<td>100.416 ± 0.130</td>
<td>100.076 ± 0.418</td>
<td>99.25±0.137</td>
</tr>
<tr>
<td>Aqueous extract</td>
<td>200 mg/kg</td>
<td>99196 ± 0.129</td>
<td>100.64 ± 0.218</td>
<td>100.24 ± 0.22</td>
<td>99.820±0.188</td>
<td>99.631±0.180</td>
</tr>
</tbody>
</table>

Values are expressed as Mean ± SEM for 6 animals. *P value < 0.001* Data was analyzed by ANOVA.

**Table 2: Analgesic activity of extracts of stem of Asclepias curassavica Linn**

<table>
<thead>
<tr>
<th>Group</th>
<th>Treatment</th>
<th>Dose</th>
<th>Basal Reaction Time in Sec</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5min.</td>
<td>15min.</td>
</tr>
<tr>
<td>I</td>
<td>Control</td>
<td>5mg/kg</td>
<td>2.33±0.192</td>
</tr>
<tr>
<td>II</td>
<td>Paracetamol</td>
<td>100 mg/kg</td>
<td>2.50±0.204</td>
</tr>
<tr>
<td>III</td>
<td>Alcoholic Extract</td>
<td>200 mg/kg</td>
<td>2.66 ± 0.193</td>
</tr>
<tr>
<td>IV</td>
<td>Aqueous extract of</td>
<td>200 mg/kg</td>
<td>2.50 ± 0.204</td>
</tr>
</tbody>
</table>

Each value is represent ± SEM of six observation. 
*P < 0.001* Data was analyses by ANOVA followed by DUNEET'S test

**SUMMARY AND CONCLUSION**

The LD$_{50}$ of the aqueous and alcoholic extracts of stem of Asclepias curassavica Linn. was found to be 2000 mg/kg. Therefore ED50 was calculated as 200 mg/kg. In the pharmacological studies, the aqueous and alcoholic extracts of stem of Asclepias curassavica Linn showed significant Anti-pyretic and Analgesic activity. Anti-pyretic activity was evaluated by Brewers yeast induced pyrexia in rats and analgesic activity was evaluated by tail flick method on mice. Hence this work gives some scientific proof for medicinal value of the selected plant.

**ACKNOWLEDGEMENT**

The authors are thankful to Dr Mohd Shuaib Director, department of pharmacy,Kalka institute of research and advanced studies,MEERUT for providing necessary facilities for this research work.

**REFERENCES**

1. Ayurvedic Pharmacopoeia of India, Part – I, 1:45.
2. Henory AN, Kumari GR and Chithae V. Flora of Thailand; series-I.
3. Nandkarni’s KM. Indian Materia medica. 1;157.