Analgesic and Anti-inflammatory Effect of Ethyl Acetate Fraction of Methanolic Extract of Leaves of Rheedia longifolia Planch & Triana.  

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Introduction: Previous studies with Rheedia longifolia Planch & Triana leaves extract, showed significant analgesic activity, associated with low toxicity. This extract was fractionated, originating the ethyl acetate fraction (RhFAcEt) which contains amentoflavone. This work aims to investigate the biological effect of RhFAcEt.  

Methodology: Swiss Webster mice (CEUA License 033/09) were treated with RhFAcEt (1mg/kg, p.o.), 1h before carrageenan (300µg), bradykinin (3nmol) or histamine (100nmol) injection. The analgesic effect was evaluated by von Frey filaments and paw volume was measured by plethysmometer. To perform pleurisy, mice received intrapleural injection of carrageenan (300µg) 1h after treatment with RhFAcEt (1mg/kg, p.o.) and the inflammatory response observed 4h after stimulation. For safety evaluation mice were treated with RhFAcEt (10mg/kg, p.o.) for 28 days. Mice received 0.8% acetic acid i.p. 1h after treatment with amentoflavone (0.01; 0.1 and 1mg/kg, p.o.). Writhing number was counted for 10 min. Diclofenac (50mg/kg, p.o.) and hidroxizine (10mg/kg, p.o.) were used as standard drugs.  

Results / Discussion: RhFAcEt reduced nociception and paw edema induced by bradicinin (25%, 50%) or histamin (61%, 51%) respectively. However RhFAcEt did not reduced carragenan edema, despite its analgesic effect (35%). Mice treated with RhFAcEt (1mg/kg) showed reduction in the total number of leukocytes (38%), mainly neutrophil (55%) in their pleura challenged with carrgeenan. Theses results were accompanied by significant reduction of TNF-α (20%), IL-1β (59%) and IL-6 (65%) in relation to control group. Amentoflavone showed dose-dependent antinociceptive action (Fig 1). No toxic effects were observed after 28 days (Table 1).  

Conclusion: Our results showed the analgesic effect of amentoflavone and the antinociceptive and anti-inflammatory activity of RhFAcEt with efficacy and safety.  

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Table 1. Toxicological results after 28 days of daily treatment with RhFAcEt  

<table>
<thead>
<tr>
<th>Reference Values</th>
<th>Number of gastric lesions</th>
<th>Glucose (mg/dL)</th>
<th>Creatinine (mg/dL)</th>
<th>Alkaline Phosphatase (U/L)</th>
<th>pyruvic transaminase (U/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMSO 1%</td>
<td>0.0 ± 0.0</td>
<td>122.8 ± 17.2</td>
<td>0.4 ± 0.1</td>
<td>191.3 ± 57.4</td>
<td>63.6 ± 9.4</td>
</tr>
<tr>
<td>RhFAcEt 10mg/kg</td>
<td>0.1 ± 0.1</td>
<td>118.5 ± 12.3</td>
<td>0.3 ± 0.0</td>
<td>115 ± 17.4</td>
<td>63 ± 1.7</td>
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