Antinociceptive Activity of Proteins Extracted from Noni (Morinda citrifolia L.) Leaves

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Morinda citrifolia is a medicinal plant claimed to relieve pain and inflammation. Most of noni is consumed as juice, although leaves can also be used for these purposes. Published data show that noni products may cause liver toxicity highlighting the necessity for further investigation of their active principles and pharmacological safety. This work aimed to evaluate the antinociceptive activity of noni leaf proteins and investigate their acute toxicity in mice. Leaves, dried at room temperature, were homogenized with 50 mM Tris-HCl (1:10 w/v), pH 8.0 using an electric blender and incubated (3 h; 4 °C) with constant stirring. The homogenate was centrifuged (10,000 x g, 4 °C, 30 min), the resultant pellet discarded and the supernatant was brought to 90% saturation of ammonium sulfate. Approximately 85.2 mg of soluble proteins were obtained from 10 g of dried leaves. The crude extract was analysed by SDS-PAGE (12.5%) exhibiting protein bands of 40, 30 and 18 kDa. The 90% ammonium sulfate precipitated fraction was redissolved in 50 mM Tris-HCl, pH 8.0 and dialysed (12 kDa cut-off) against the same buffer. Intraperitoneal injection of F0-90% (28 mg/kg) into mice reduced the occurrence of abdominal writhings induced by acetic acid by 78% when compared to control group (p<0.05, Student’s t-test). Treatment with noni leaf proteins did not produce any sign of acute toxicity during the observation period of 24 h. This study showed that leaf proteins are involved in the analgesic properties of noni and supports the use of this plant for medicinal purposes.

Word Keys: antinociceptive activity, leaf proteins, Morinda citrifolia L.
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