

**PHARMACOLOGICAL ACTIVITIES AND SAFETY EVALUATION  
OF AQUEOUS AND HOT ETHANOLIC EXTRACTS OF  
ALPINIA CALCARATA RHIZOMES IN RATS**

L.S.R.ARAMBEWELA<sup>1</sup>, L.D.A.M.ARAWWAWALA<sup>1</sup> AND W.D.RATNASOORIYA<sup>2</sup>

<sup>1</sup> *Industrial Technology Institute, Baudhdhaloka Mawatha, Colombo 7*

<sup>2</sup> *Department of Zoology, Faculty of Science, University of Colombo*

Rhizomes of *Alpinia calcarata* Roscoe (Zingiberaceae) possess several bio-activities and are used in traditional medicine of Sri Lanka. However, their antinociceptive and anti-inflammatory activities have not been investigated so far. The aim of this study therefore, was to examine the antinociceptive / anti-inflammatory activities and evaluation of safety profile for hot water extract (HWE) and hot ethanol extract (HEE) of *A. calcarata* rhizomes using rats.

Antinociception was determined by three models of nociception (tail flick, hot plate and formalin tests). Different concentrations of HWE (100, 250, 500, 750, 1000 mg/kg) and HEE (100, 250, 500, 750, 1000 mg/kg) were made and orally administered to rats and the reaction times determined. The results showed that the extracts have marked dose dependent antinociceptive activity, when evaluated in the hot plate and the formalin tests but not in the tail flick test. The antinociceptive effect was slightly higher in HEE than that of HWE.

The anti-inflammatory activity of *Alpinia calcarata* was determined in rats using the plethysmometer. Compared to the HWE, all doses of HEE had better suppression on inflammation. Inhibitory activity elicited by 500 mg/kg dose of HEE against carrageenin induced paw edema at 1,2,3,4 & 5 hours were 54.9, 68.3, 51.5, 77.6 & 71.4 % respectively.

To evaluate the safety profile of *A. calcarata*, HWE and HEE were given orally at dose of 1500 mg / kg per day for 42 consecutive days. The results showed that both extracts were well tolerated in terms of % weight gain, food and water intake, morbidity, aversive behaviors, mortality, blood haematology, serum analysis and organ weights except the spleen. Both extracts significantly increased ( $P < 0.01$ ) the weight of the spleen, which suggest lymphoproliferative activity.

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