

## Gastroprotective activity of hot ethanolic extract of *Alpinia calcarata* rhizome in rats

L. S. R. Arambewela<sup>1</sup>, L. D. A. M. Arawwawala<sup>1</sup>, \*W. D. Ratnasooriya<sup>2</sup>

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### Abstract

A study to evaluate the gastroprotective activity of hot ethanolic extract (HEE) of *Alpinia calcarata* Roscoe (Zingiberaceae) rhizomes was carried out in rats. Three doses (500, 750, 1000 mg/kg) of HEE were evaluated for gastroprotective activity against ethanol induced gastric ulcers. Oral administration of HEE provided dose dependent and significant ( $P < 0.05$ ) protection against gastric damage caused by ethanol. The gastroprotective effect of HEE was superior than cimetidine, the reference drug. HEE had strong anti-histamine and antioxidant activities, which could have played an active role in inducing gastroprotection. HEE was devoid of unacceptable side effects: no overt signs of toxicity, hepatotoxicity, renotoxicity or haemotoxicity were observed up to 42 days. However, the weight of the spleen was increased in treated groups possibly indicating lymphoproliferative activity. It is concluded that HEE of *A. calcarata* rhizome has gastroprotective activity in rats. No immediate dose related serious toxicity was observed.

**Key words:** *Alpinia calcarata*, gastro-protection, antihistamine, antioxidant, safety profile.

### Introduction

*Alpinia calcarata* Roscoe (Zingiberaceae, Heen-araththa in Sinhala and Amkolinji in Tamil) is a rhizomatous perennial herb with a tuberous root stock. The mature rhizomes are branched and dense with a light to dark brown color. *A. calcarata* is distributed among the Asian countries including Sri Lanka, India and Malaysia (1,2). Some diterpenes such as calcaratarins A – E, sesquiterpenes such as shyobunone and coumarins such as herniarin were isolated from the rhizomes of *A. calcarata* grown in China (3,4). Merh and co-workers (5) isolated some benzenoids such as protocatechuic acid, vanillic acid, syringic acid, flavonoids and alkaloids from the leaves of *A. calcarata* grown in India. We have isolated 18 volatile constituents in essential oils of Sri Lankan grown *A. calcarata* rhizomes, roots and leaves (6). 1,8-cineol was found to be the major constituent in the oils of rhizomes and leaves while in the roots, it was  $\alpha$  fenchyl acetate.

The rhizome of *A. calcarata* is known to possess a broad spectrum of medicinal and pharmacological properties (7). In Sri Lankan traditional medicine rhizomes of *A. calcarata* are recommended as an aphrodisiac and a decoction is widely used

1. Industrial Technology Institute, Bauddhaloka Mawatha, Colombo 7, Sri Lanka.

2. Department of Zoology, University of Colombo, Colombo 3, Sri Lanka.

\* Author for correspondence E-mail: wdr@zoology.cmb.ac.lk