

## Identification of plants used for the relief of inflammation in traditional medicine as inhibitors of eicosanoid generation by activated leucocytes

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*Billbergia porteana* (Bromeliaceae), *Ctenanthe oppenheimiana* (Marantaceae), *Hohenbergia catingae* (Bromeliaceae) and *Launaea arborescens* (Compositae) are used in traditional medicine for the relief of inflammation. 100mg of dried leaves of each species was extracted with ethanol and reduced to 1ml. The four extracts were tested for inhibition of formation of key metabolites in the inflammatory arachidonic acid cascade, using a rat neutrophil leukocyte system (Hoult *et al.*, 1994; de las Heras *et al.*, 1994).

Mixed leukocytes were obtained by peritoneal lavage from female Wistar rats pretreated 16h previously with 10ml 6% glycogen and resuspended at  $2.5 \times 10^6$  cells/ml in HBSS. Cells were preincubated for 5 min with the plant extracts (added in 5µl of acetone or hexane, dried before adding cells, final concentration 50µg/ml) and stimulated with calcium ionophore, A23187. After 10 min incubation at 37°C, cells were pelleted and supernatants retained for RIA of generated thromboxane (TXB<sub>2</sub>) and leukotriene

(LTB<sub>4</sub>), formed via the cyclo-oxygenase and 5-lipoxygenase pathways, respectively. Results are shown in Table 1.

The extract of *H. catingae* was an active inhibitor of both the cyclo-oxygenase and 5-lipoxygenase pathways of arachidonic acid metabolism, whereas *C. oppenheimiana* extract showed less potent activity against these pathways. In both cases, inhibition of TXB<sub>2</sub> (cyclo-oxygenase pathway) was greater than of LTB<sub>4</sub> (5-lipoxygenase pathway), implying some degree of selectivity towards this enzyme. In contrast, extracts of *B. porteana* and *L. arborescens* were inactive.

Bioassay guided fractionation of the two active extracts is in progress to determine the compound(s) responsible for this observed enzyme inhibition.

Hoult, JR *et al.* (1994) *Methods in Enzymology* **234**: 443-454  
de las Heras, B. *et al.* (1994) *Planta Med.* **60**: 501-506

**Table 1. Interaction of plant extracts with the generation by rat leukocytes of TXB<sub>2</sub> and LTB<sub>4</sub>.**

Plant species or control	TXB <sub>2</sub> generation (ng/ml)	% of control	LTB <sub>4</sub> generation (ng/ml)	% of control
Cells only	3.0 ± 0.8	0	4.7 ± 0.8	0
A23187 (10 <sup>6</sup> M)	15.3 ± 1.6	100	196.5 ± 8.4	100
<i>B. porteana</i> (A)	9.4 ± 2.3	52.0	128.7 ± 29.8**	65.5
<i>C. oppenheimiana</i> (A)	7.4 ± 1.7*	35.8	119.0 ± 18.6**	60.6
<i>H. catingae</i> (H)	4.1 ± 0.4**	8.9	67.7 ± 6.9***	34.4
<i>L. arborescens</i> (H)	14.6 ± 0.4**	94.3	209.0 ± 6.9	106.4

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001 compared to A23187; dissolved in (A):acetone, (H):hexane