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Contributed Paper

## Antinociceptive and Anti-inflammatory Effects of the Ethanolic Extract of *Curcuma aff. amada*

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### ABSTRACT

*Curcuma aff. amada* is used for treatment of poisoning, detoxification and anti-inflammation in Thai folk medicine. However, there is no scientific evidence supporting the potential antinociceptive and anti-inflammatory activities of this plant. To investigate the antinociceptive and anti-inflammatory effects of the ethanolic extract of *Curcuma aff. amada* rhizome (CAE) and to examine the mechanisms of actions underlying these effects, the antinociceptive effect of CAE was assessed in mice using hot-plate, acetic-acid induced writhing and formalin tests. The anti-inflammatory effect of CAE was investigated by evaluation of carrageenan-induced paw edema, prostaglandin E<sub>2</sub> (PGE<sub>2</sub>)-induced paw edema, arachidonic acid-induced paw edema, and cotton pellet-induced granuloma formation. To investigate the mechanism of anti-inflammatory action, paw tissues were examined histologically. Oral administration of CAE (100 and 200 mg/kg) significantly increased hot-plate latencies and this effect was reversed by naloxone, indicating involvement of opioid receptors. CAE (12.5, 25, 50, 100 and 200 mg/kg) significantly reduced acetic acid-induced writhing and caused significant inhibition of formalin-induced paw licking in both phases. In anti-inflammatory tests, CAE at doses of 12.5, 25, 50, 100 and 200 mg/kg significantly suppressed carrageenan-induced paw edema at 4, 5 and 6 h after carrageenan injection and showed significant activity against PGE<sub>2</sub>-induced paw edema. CAE failed to inhibit paw edema induced by arachidonic acid. Histological studies showed that all doses of CAE decreased infiltration of neutrophils induced by carrageenan. CAE at 200 mg/kg also inhibited cotton pellet-induced granuloma formation in mice. Taken together, these results show that CAE possesses both central and peripheral antinociceptive activities and has anti-inflammatory effects against acute and chronic inflammation with no obvious acute toxic effects. These data support the ethnopharmacological use of this extract for treatment of pain and inflammatory disorders. However, further evaluation of the safety profile of the extract is needed.