

Antinociceptive Antiinflammatory Effect of Monotropein Isolated from the root of *Morinda officinalis*

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The root of *Morinda officinalis* (Rubiaceae) is used to treat rheumatoid arthritis and impotence in the traditional Oriental medicine. To identify the antinociceptive anti-inflammatory components of this crude drug, we adopted an activity-directed fractionation approach. The active fraction of the BuOH extract of *M. officinalis* root was subjected to silica gel and ODS column chromatography to yield two diterpenes, compounds **1** and **2** and these were identified as monotropein and deacetylasperulosidic acid, respectively (Fig. 1). The iridoid glycoside, monotropein, was tested for its anti-inflammatory antinociceptive effects using hot plate- and writhing antinociceptive assays and by using carrageena-induced anti-inflammatory assays in mice and rats. Pretreatment with monotropein (at 20, 30 mg/kg/day, *p.o*) significantly reduced stretching episodes and prolonged action time in mice (Fig. 2). It also significantly reduced acute paw edema by carrageenan in rats (Fig. 3). These results indicate that monotropein contributes to the antinociceptive and anti-inflammatory action of *Morinda officinalis* root.

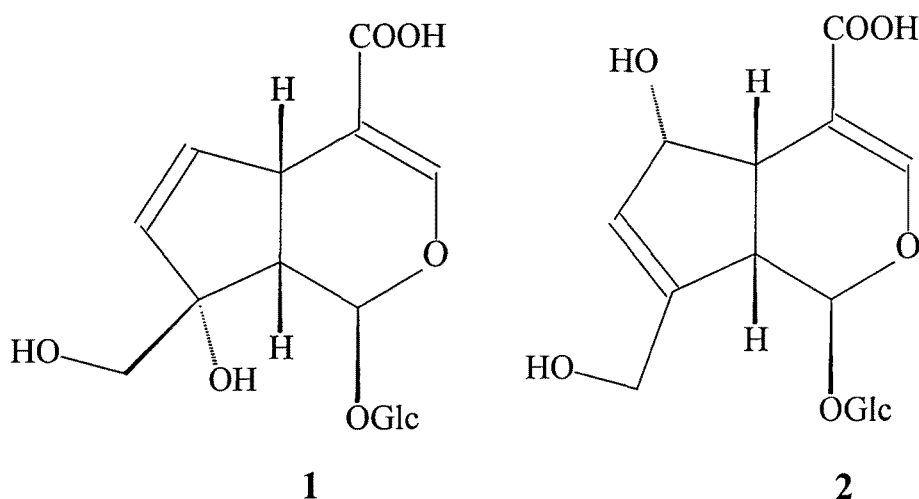


Fig. 1. Structure of monotropein (1) and deacetylasperulosidic acid (2) isolated from *M. officinalis*

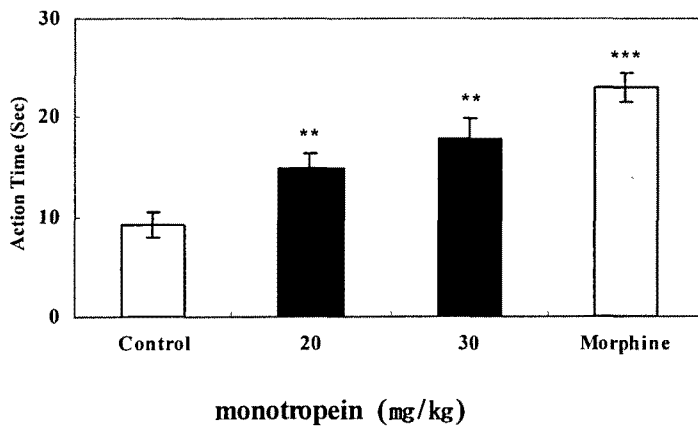
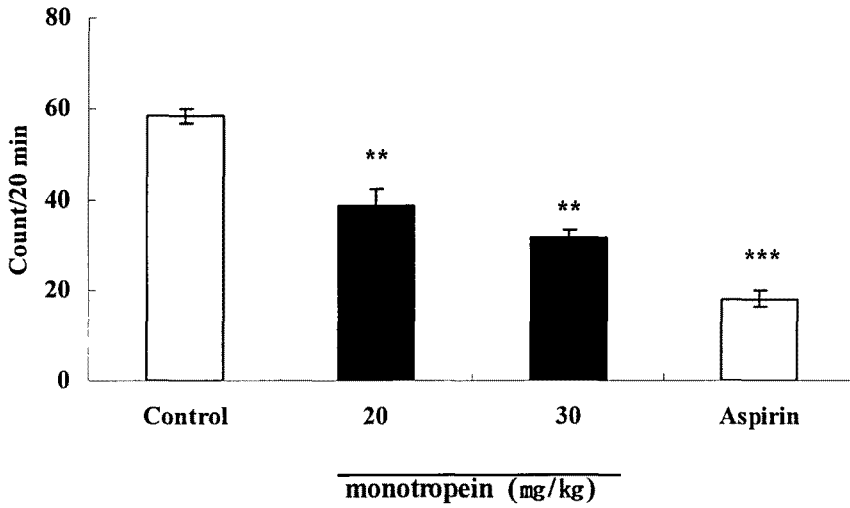


Fig. 2. Antinociceptive effect of monotropein isolated from the roots of *M. officinalis* by acetic acid-induced writhing and hot-plate assays in mice.

Methods indicate writhing- (upper), and hot plate tests (down), respectively. Values represent means ± S.D. (n=10). **, *** asterisks indicate significantly different means (p<0.01 and p<0.001, respectively) versus the normal untreated control.

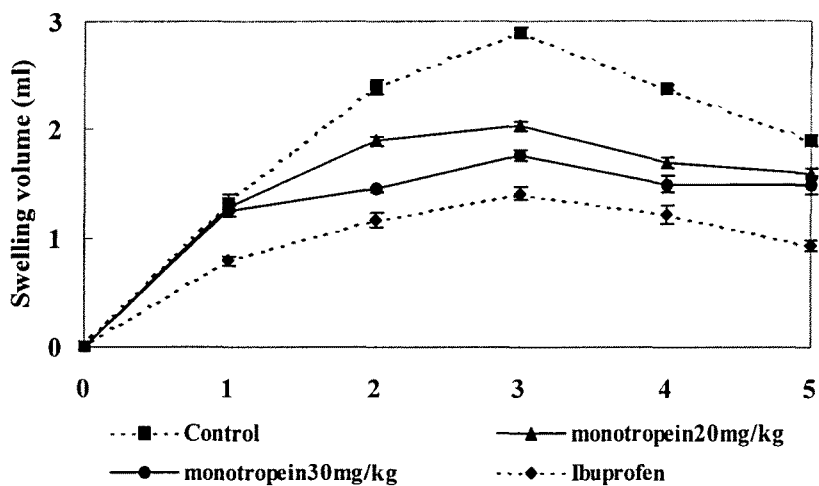


Fig. 3. Effects of monotropein isolated from the roots of *M. officinalis* on carrageenan-induced paw edema in rats. Values represent means \pm S.D. (n=10).