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Effects of honokiol and magnolol on acute and inflammatory pain models in mice.

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Abstract

The antinociceptive actions of honokiol and magnolol, two major bioactive constituents of the bark of Magnolia officinalis, were evaluated using tail-flick, hot-plate and formalin tests in mice. The effects of honokiol and magnolol on the formalin-induced c-Fos expression in the spinal cord dorsal horn as well as motor coordination and cognitive function were examined. Data showed that honokiol and magnolol did not produce analgesia in tail-flick, hot-plate paw-shaking and neurogenic phase of the overt nociception induced by intraplantar injection of formalin. However, honokiol and magnolol reduced the inflammatory phase of formalin-induced licking response. Consistently, honokiol and magnolol significantly decreased formalin-induced c-Fos protein expression in superficial (I-II) laminae of the L4-L5 lumbar dorsal horn. However, honokiol and magnolol did not elicit motor incoordination and memory dysfunction at doses higher than the analgesic dose. These results demonstrate that honokiol and magnolol effectively alleviate the formalin-induced inflammatory pain without motor and cognitive side effects, suggesting their therapeutic potential in the treatment of inflammatory pain.

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