Antinociceptive activity of 2-benzoyl-6-(3-bromo-4-hydroxybenzylidene)cyclohexen-1-ol in mice

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Abstract

A novel compound from diarylpentanoids analogues, 2-benzoyl-6-(3-bromo-4-hydroxybenzylidene)cyclohexen-1-ol, was evaluated on its antinociceptive activity in mice through acetic acid-induced abdominal constriction test. Antinociception of 2-benzoyl-6-(3-bromo-4-hydroxybenzylidene)cyclohexen-1-ol was indicated by the reduction in the mean of the number of abdominal constrictions in the test groups compared to the control group. Acetylsalicylic acid (ASA, 100 mg/kg) was used as reference drugs while control group only received vehicle (5% DMSO: 5% Tween 20: 90% Distilled water) that used to dissolve the compound. The mice that received intraperitoneal injections of 2-benzoyl-6-(3-bromo-4-hydroxybenzylidene)cyclohexen-1-ol at 0.1, 0.3, 1.0 and 3.0 mg/kg showed 48.34%, 60.79%, 90.07% and 98.54% of inhibition respectively. Acetic acid injection in mice peritoneal cavity can promote the release of many inflammatory mediators such as prostaglandin, bradykinin, substance P, TNF-α, IL-1β, IL-8 and other mediator, which will then stimulate primary afferent neurons to enhance the release of aspartate and glutamate. Hence, the result obtained from this chemical model of nociception suggests that the antinociceptive activity of 2-benzoyl-6-(3-bromo-4-hydroxybenzylidene)cyclohexen-1-ol may be linked partly to the inhibition of the inflammatory mediators.

Keywords: Acetic acid-induced abdominal constriction test, antinociceptive activity, diarylpentanoids analogues.

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