

**UNIVERSITI TEKNOLOGI MARA**

**BIO-GUIDED ISOLATION OF  
ANTINOCICEPTIVE COMPOUNDS  
FROM *Muntingia calabura* L. LEAF  
EXTRACT**

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of the requirements for the degree of  
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## AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic or non-academic institution for any other degree or qualification.

I, hereby acknowledge that I have been supplied with the Academic Rules and Regulations for Postgraduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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## ABSTRACT

*Muntingia calabura* (Elaeocarpaceae) is known as “Buah Ceri Kampung” locally. It has been claimed by the Peruvian folklore to possess medicinal values such as analgesic, which include soothing gastric ulcers, relieving headache and cold and reducing swelling of the prostate gland. This study focuses on evaluating the antinociceptive effects of the extract of the leaves of *Muntingia calabura* using formalin-induced licking and biting test. In the present study, activity-guided of the methanol extract of *Muntingia calabura* (MCME) collected in Shah Alam, Malaysia were evaluated for their antinociceptive properties using the formalin test. Seven fractions of *Muntingia calabura* petroleum ether extract (MCPE) were labeled as A, B, C, D, E, F and G. The antinociceptive properties of the fractions were studied in comparison to distilled water (dH<sub>2</sub>O) or 10% Dimethyl Sulfoxide (DMSO), morphine and aspirin (ASA) as negative and positive control respectively. Fraction D showed most significant antinociceptive activity when compared to another fraction both in first phase and second phase of formalin test at a dosage of 300 mg/kg. Fraction D and morphine showed no significant differences in first phase, while in second phase, fraction D and aspirin showed no significant differences. Various chromatographic methods were used to separate all compounds including vacuum layer chromatography (VLC), thin layer chromatography (TLC), glass column chromatography, and centrifugal chromatography. One new compound together with three known compounds namely 8-hydroxy-6-methoxyflavone (**IC4**), 5-hydroxy-3, 6, 7-trimethoxyflavone, (**IC1**), 3, 7-dimethoxy-5-hydroflavone (**IC2**) and 2', 4'-dihydroxy-3'-methoxychalcone (**IC3**) were isolated from fraction D respectively. **IC3** exhibited higher percentage of antinociception inhibition both in first phase (34.5 %) and second phase (43.8 %) of formalin test at the dose of 50 mg/kg. As a conclusion, the result of the present study support the folkloric use of the leaves of *Muntingia calabura* in Peruvian folk medicine against pain, and flavonoid derivatives are directly involved in the antinociceptive mechanism of *Muntingia calabuura* leaves extract. However, further study is required to confirm the exact mechanism involved.

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