

In vitro cytotoxic, antioxidant, and antimicrobial activities of *Mesua beccariana* (Baill.) Kosterm., *Mesua ferrea* Linn., and *Mesua congestiflora* extracts

Abstract

The in vitro cytotoxicity tests on the extracts of *Mesua beccariana*, *M. ferrea*, and *M. congestiflora* against Raji, SNU-1, HeLa, LS-174T, NCI-H23, SK-MEL-28, Hep-G2, IMR-32, and K562 were achieved using MTT assay. The methanol extracts of *Mesua beccariana* showed its potency towards the proliferation of B-lymphoma cell (Raji). In addition, only the nonpolar to semipolar extracts (hexane to ethyl acetate) of the three *Mesua* species indicated cytotoxic effects on the tested panel of human cancer cell lines. Antioxidant assays were evaluated using DPPH scavenging radical assay and Folin-Ciocalteu method. The methanol extracts of *M. beccariana* and *M. ferrea* showed high antioxidant activities with low EC₅₀ values of 12.70 and 9.77 µg/mL, respectively, which are comparable to that of ascorbic acid (EC₅₀ = 5.62 µg/mL). Antibacterial tests were carried out using four Gram positive and four Gram negative bacteria on *Mesua beccariana* extracts. All the extracts showed negative results in the inhibition of Gram negative bacteria. Nevertheless, methanol extracts showed some activities against Gram positive bacteria which are *Bacillus cereus*, methicillin-sensitive *Staphylococcus aureus* (MSSA), and methicillin-resistant *Staphylococcus aureus* (MRSA), while the hexane extract also contributed some activities towards *Bacillus cereus*.

Keyword: Vitro cytotoxic; Antioxidant; Antimicrobial activities; *Mesua beccariana* (Baill.) Kosterm.; *Mesua ferrea* Linn.; *Mesua congestiflora*