

**Structure–activity relationship study of secondary metabolites from *Mesua beccariana*,
Mesua ferrea and *Mesua congestiflora* for anti-cholinesterase activity**

ABSTRACT

Our search for potential anti-acetylcholinesterase (AChE) inhibitors for treatment of Alzheimer's disease has led to the discovery of two bioactive compounds, α -mangostin (**11**) and congestiflorone acetate (**13**). This discovery was achieved from a preliminary screening of the anti-AChE activity on the extracts of three *Mesua* species namely *M. ferrea*, *M. beccariana* and *M. congestiflora* using Ellman's method. The pure metabolites, **1–12** which were isolated from the *Mesua* species, along with a synthetic derivative, compound **13** were then evaluated for their activities in order to identify the compounds that correspond to the enzyme inhibitory activities. Compounds **11** and **13** were found to give significant anti-AChE activities with IC₅₀ values of 17.51 and 20.25 μ M.

Keyword: Anti-acetylcholinesterase; *Mesua ferrea*; *Mesua beccariana*; *Mesua congestiflora*; α -mangostin; Congestiflorone acetate