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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 IC_{50} values of 17.51 and 20.25 µM.

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