

OR-10***In Vitro* Cholinesterase Enzymes Inhibitory Activities of Methanolic and Aqueous Extracts of Different Parts of *Dillenia Suffruticosa***Jayadhisana Muniandy¹, Amirin Sadikun² and Vikneswaran Murugaiyah^{1,*}¹*Discipline of Pharmacology, School of Pharmaceutical Sciences, Universiti Sains Malaysia, 11800 Penang, Malaysia;*²*Discipline of Pharmaceutical Chemistry, School of Pharmaceutical Sciences, Universiti Sains Malaysia, 11800 Penang, Malaysia; E-mail: vicky@usm.my*

One of the most important biochemical changes observed in the brain of Alzheimer's disease patients is decrease in hippocampal and cortical levels of neurotransmitter acetylcholine. Inhibitors of acetylcholinesterase (AChE) such as donepezil, galantamine, and rivastigmine, which enhance the concentrations and duration of action of acetylcholine in central cholinergic synapses are currently the most promising available drugs for the treatment of Alzheimer's disease. Thus, continuous search for novel cholinesterase inhibitors is ongoing, in particular from the medicinal plants. In this present study, cholinesterase enzymes inhibitory activities of the methanolic and aqueous extracts of various parts of *Dillenia suffruticosa* were determined by the Ellman's spectrophotometric method. The methanolic extract of *D. suffruticosa* root showed the highest AChE and butyrylcholinesterase (BChE) inhibitory activities with IC₅₀ values of 20.46±0.64 µg/ml and 8.04±0.49 µg/ml respectively, comparable to the standard drug physostigmine. All the methanolic and aqueous extracts of *D. suffruticosa* were selective towards BChE. This findings warrant further investigation of the bioactive constituents of *D. suffruticosa* root extract.

Keywords: Alzheimer's disease, acetylcholinesterase, butyrylcholinesterase, IC50, *Dillenia suffruticosa*.
