
**Acetylcholinesterase inhibitory activity of *Psychotria sarmentosa*,
Olax zeylanica and *Hoya ovalifolia***

W. S. De Silva, C. D. Wijayarathna and H. I. C. De Silva*

Department of Chemistry, Faculty of Science, University of Colombo, Sri Lanka

**Corresponding author: hicdesilva@chem.cmb.ac.lk*

Alzheimer's disease is the most prevailing neurodegenerative disease and is becoming one of the major human health concerns today. Medicinal plants are known to produce a broad range of bioactive compounds and thus become an excellent source for the discovery of novel anti-acetylcholinesterase active drugs. *Psychotria sarmentosa*, *Olax zeylanica* and *Hoya ovalifolia* are used in traditional medicines of Sri Lanka to treat various diseases including cognitive disorders. The objective of this study was to evaluate acetylcholinesterase (AChE) inhibitory properties of the organic extracts of the selected medicinal plants. Different parts of the plants (leaves, roots and bark) were air dried and powdered samples were extracted with methanol/dichloromethane mixtures to yield the total organic extracts. AChE inhibitory activity of the extracts was assessed using the

Ellman's method in 96-well microplates and all the tests were done in triplicate. The highest AChE inhibitory activity was shown by the leaf extract of *H. ovalifolia* with an IC_{50} value of 85.6 ± 0.6 $\mu\text{g/mL}$. Furthermore, the leaf extract of *P. sarmentosa* and root extract of *H. ovalifolia* exhibited good activities with IC_{50} values of 315.1 ± 0.6 $\mu\text{g/mL}$ and 339.9 ± 0.9 $\mu\text{g/mL}$, respectively. Galantamine (IC_{50} 1.57 ± 0.01 $\mu\text{g/mL}$) was used as the standard acetylcholinesterase inhibitor. According to the current investigation it could be concluded that *H. ovalifolia* and *P. sarmentosa* possess good anti-cholinesterase activity and can be used to isolate novel anti-acetylcholinesterase compounds.

Keywords: Acetylcholinesterase, *Psychotria sarmentosa*, *Olax zeylanica*, *Hoya ovalifolia*