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Acetylcholinesterase enzyme inhibitory activity of *Olax zeylanica*

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INTRODUCTION AND OBJECTIVES

Acetylcholinesterase (AChE) is an enzyme present in cholinergic synapses that terminates the neurotransmission process. Natural and synthetic AChE inhibitors are used to treat neurodegenerative disorders such as Alzheimer's and Parkinson's disease. Hence search for novel AChE inhibitors are of immense interest. Medicinal plants have been widely employed in indigenous medicine in Sri Lanka but they have not been adequately studied for their potential phytochemical and pharmacological activities. *Olax zeylanica* is commonly known as 'mella' and used in Ayurveda medicine in Sri Lanka. It has not been investigated for its potential bioactivities except insect repellent activity. The aim of this study was to investigate AChE inhibitory activity of leaves of *O. zeylanica*.

METHODS

Air-dried, powdered leaves of *O. zeylanica* were sequentially extracted into hexane, dichloromethane, ethyl acetate and methanol. The AChE inhibitory activities of the above extracts were tested *in vitro* following the Ellmen's method with slight modifications. All reagents used in this assay were freshly prepared. Donepezil hydrochloride was used as the positive control.

RESULTS

Results indicated that all extracts of *O. zeylanica* possess moderate AChE enzyme inhibitory activity. Ethyl acetate extract had the highest AChE inhibitory activity of 47.5% (at 1000 ppm).

CONCLUSIONS

This study revealed *O. zeylanica* is a potential source of natural AChE inhibitors and isolation of active constituents may help to develop new drug candidates that could be used to manage the symptoms of neurodegenerative disorders.

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