

UNIVERSITI TEKNOLOGI MARA

**BACE1 INHIBITORY ACTIVITY OF
MYRICETIN AND MAHANIMBINE**

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ABSTRACT

BACE1 INHIBITORY ACTIVITY OF MYRICETIN AND MAHANIMBINE

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BACE1 or β -secretase, an aspartyl protease enzyme was found majorly in neurons and its appearance and activity were found to be elevated in the brains of AD patients. A flavonoid compound, myricetin and a carbazole alkaloid compound, mahanimbine were tested for their BACE1 inhibitory activity using the BACE1 fluorescence resonance energy transfer (FRET) assay kit with compounds concentration ranging from 0.1 μ g/ml to 1000 μ g/ml. Both compounds, at its highest concentration (1000 μ g/ml), was found to exhibit more than 90% inhibition of BACE1 in the preliminary screening. Mahanimbine was found to be the more active compound against BACE1 activity with IC_{50} value of 5.0 μ g/ml, when compared to myricetin (IC_{50} value = 17.0 μ g/ml). These results indicate that at the highest concentration mahanimbine was able to inhibit BACE1 activity more than myricetin, and the IC_{50} values indicate that at 50% inhibition mahanimbine was able to inhibit BACE1 activity at a lower concentration than myricetin. This study shows that both myricetin and mahanimbine may have potential as therapeutic or preventive agents for AD via inhibitory activity of BACE1. However, further studies and more extensive studies are warranted on both compounds to improve their potential as neuroprotective agents and for their inhibitory activity against BACE1 in order to develop anti-Alzheimer or anti-dementia therapy.