

Monoamine oxidase B and free radical scavenging activities of natural flavonoids in *Melastoma candidum*

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Abstract

Monoamine oxidase type B (MAO-B) activity and free radicals are elevated in certain neurological diseases. Four natural flavonoids, quercitrin, isoquercitrin, rutin, and quercetin, were isolated for the first time from the leaves of *Melastoma candidum* D. Don. They exhibited an inhibitory effect on MAO-B. These potent flavonoids were purified using bioassay-guided fractionation and were separated by Diaion, Sephadex LH-20, and MCI CHP20P columns. The IC(50) values of the four potent flavonoids, quercitrin, isoquercitrin, rutin, and quercetin on monoamine oxidase were 19.06, 11.64, 3.89, and 10.89 microM and enzyme kinetics analysis revealed apparent inhibition constants ($K(i)$) of 21.01, 2.72, 1.83, and 7.95 microM, respectively, on the substrate, benzylamine. The four potent compounds also exhibited hydroxyl radical scavenging activity as determined using a spin trapping electron spin resonance method. This suggests that the four flavonoids from *M. candidum* possess both MAO-B inhibitory and free radical scavenging activities. These important properties may be used for preventing some neurodegenerative diseases in the future.