Monoamine oxidase B (MAO-B) inhibition by active principles from Uncaria rhynchophylla

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Abstract

Attenuation of monoamine oxidase B (MAO-B) activity may provide protection against oxidative neurodegeneration. For this reason, inhibition of MAO-B activity is used as part of the treatment of Parkinson's and Alzheimer's patients. The hook of Uncaria rhynchophylla (Miq.) Jacks. (Rubiaceae) is a traditional Chinese herbal drug that is generally used to treat convulsive disorders. In this study, the fractionation and purification of Uncaria rhynchophylla extracts using a bioguided assay isolated two known compounds, (+)-catechin and (-)-epicatechin. The compounds inhibited MAO-B, as measured by an assay of rat brain MAO-B separated by electrophoresis on a 7.5% native polyacrylamide gel. The IC50 values of (+)-catechin and (-)-epicatechin were 88.6 and 58.9 μM, respectively, and inhibition occurred in a dose-dependent manner, as measured by the fluorescence method. The Lineweaver-Burk plot revealed Ki values for (+)-catechin and (-)-epicatechin of 74 and 21 μM, respectively. This suggests that these two compounds, isolated here for the first time from Uncaria rhynchophylla, might be able to protect against neurodegeneration in vitro, and, therefore, the molecular mechanism deserves further study. This finding may also increase interest in the health benefits of Uncaria rhynchophylla.