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## Monoamine oxidase inhibition by *Rhodiola rosea* L. roots.

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### Abstract

**AIM OF THE STUDY:** *Rhodiola rosea* L. (Crassulaceae) is traditionally used in Eastern Europe and Asia to stimulate the nervous system, enhance physical and mental performance, treat fatigue, psychological stress and depression. In order to investigate the influence of *Rhodiola rosea* L. roots on mood disorders, three extracts were tested against monoamine oxidases (MAOs A and B) in a microtitre plate bioassay.

**MATERIALS AND METHODS:** Methanol and water extracts gave the highest inhibitory activity against MAOs. Twelve compounds were then isolated by bioassay-guided fractionation using chromatographic methods. The structures were determined by <sup>1</sup>H, <sup>13</sup>C NMR and HR-MS.

**RESULTS:** The methanol and water extracts exhibited respectively inhibitions of 92.5% and 84.3% on MAO A and 81.8% and 88.9% on MAO B, at a concentration of 100 microg/ml. The most active compound (rosiridin) presented an inhibition over 80% on MAO B at a concentration of 10<sup>-5</sup> M (pIC<sub>50</sub>=5.38±0.05).

**CONCLUSIONS:** The present investigation demonstrates that *Rhodiola rosea* L. roots have potent anti-depressant activity by inhibiting MAO A and may also find application in the control of senile dementia by their inhibition of MAO B.

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