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The antidepressant-like effect of bacopaside I: possible involvement of the oxidative stress system and the noradrenergic system.

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Abstract

In the present study, the antidepressant-like effect of bacopaside I, a saponin compound present in the **Bacopa monniera** plant, was evaluated by behavioral and neurochemical methods. Bacopaside I (50, 15 and 5 mg/kg) was given to mice via oral gavage for 7 successive days. The treatment significantly decreased the immobility time in mouse models of despair tests, but it did not influence locomotor activity. Neurochemical assays suggested that treatment by bacopaside I (50, 15 and 5 mg/kg) improved brain antioxidant activity to varying degrees after the behavioral despair test. Bacopaside I (15 and 5 mg/kg) significantly reversed reserpine-induced depressive-like behaviors, including low temperature and ptosis. Conversely, bacopaside I did not affect either brain MAO-A or MAO-B activity after the behavioral despair test in mice. Additionally, 5-hydroxytryptophan (a precursor of 5-**serotonin**) was not involved in the antidepressant-like effect of bacopaside I. These findings indicated that the antidepressant-like effect of bacopaside I might be related to both antioxidant activation and noradrenergic activation, although the exact mechanism remains to be further elucidated.

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KEYWORDS: 5-HT; 5-HTP; 5-Hydroxytryptamine; 5-Hydroxytryptophan; Antidepressant-like effect; Antioxidant activation; Bacopaside I; CAT; Catalase; FST; Forced swim; Forced swim test; GSH-Px; Glutathione peroxidase; MAO; MDA; Malondialdehyde; Monoamine oxidase; NE; Noradrenaline; Noradrenergic; SOD; Superoxide dismutase; TST; Tail suspension; Tail suspension test

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