



Involvement of Serotonergic System in the Antidepressant-Like Effect of Hyperoside from *Apocynum venetum* Leaves

Meizhu ZHENG¹, Chunming LIU^{1*}, Yajun FAN² & Dongfang SHI¹

¹ *The Central Laboratory,*

² *The College of Life Science, Changchun Normal University, Changchun, Jilin 130032, China*

SUMMARY. The present study investigated the antidepressant-like effect of hyperoside extracted from *Apocynum venetum* leaves in mice using the tail suspension test (TST) and forced swimming test (FST). Hyperoside administration at 10, 20 and 30 mg/kg (p.o.) for 10 days reduced immobility time in both tests. This effect is dose-dependent without influencing the animals' locomotor activity. Additionally, the monoaminergic mechanisms involved in the antidepressant-like effect of hyperoside in the mouse forced swimming test (FST) were evaluated. The results showed that hyperoside produced an antidepressant-like effect in the FST (10-30 mg/kg, i.g.) and in the TST (10-30 mg/kg, i.g.), without accompanying changes in ambulation distance when assessed in the open-field test. The antidepressant-like effect of hyperoside (20 mg/kg, i.g.) was prevented by the pretreatment of mice with ketanserin (5 mg/kg, s.c., a serotonin 5-HT_{2A} receptor antagonist), cyproheptadine (3 mg/kg, i.g., a serotonin 5-HT₂ receptor antagonist). On the other hand, the pretreatment of mice with WAY 100635 (0.1 mg/kg, s.c., a serotonin 5-HT_{1A} receptor antagonist) did not block the antidepressant-like effect of hyperoside in the TST. It may be concluded that the hyperoside produces an antidepressant-like effect in the FST and in the TST that is dependent on its interaction with the serotonergic (5-HT_{2A} and 5-HT₂ receptors) systems. Taken together, our results suggested that hyperoside deserves further investigation as a putative alternative therapeutic tool that could help the conventional pharmacotherapy of depression.

KEY WORDS: Antidepressant-like effect, *Apocynum venetum*, Hyperoside.

* Author to whom correspondence should be addressed. E-mail: ccsf777@yahoo.com.cn