SEROTONERGIC SYSTEM IS IMPLICATED IN THE ANTIDEPRESSANT-LIKE EFFECT OF MANGIFERIN IN MICE: ACTS WITH A NOVEL SEROTONIN REUPTAKE INHIBITOR

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Introduction: Depression is one of the most prevalent mental disorders, represents the leading causes of disability. Numerous studies indicate that a disturbance in central serotonin activity is a key factor at explaining the neurobiology of depression. In view of this, it is important to point out the importance exerted by molecules derived from species of natural origin, which may be effective alternatives in the treatment of psychiatric illnesses, including depression. In this sense, it can be highlighted mangiferin (1,3,6,7-tetrahydroxy-xanthone-C2-b-D-glucoside), a natural occurring glucosyl xanthone - bioactive compounds of mango fruits. Objectives: To further explore specifically the role of serotonergic system in antidepressant-like effect of mangiferin, were examined on the levels 5-HT uptake in cerebral cortex, hippocampus and striatum of mice. Methods: Male C57BL/6J mice were euthanized by cervical dislocation 1 h after the administration of mangiferin (25 mg/kg, p.o.), fluoxetine (10 mg/kg, p.o.) or vehicle (10mL/kg, p.o.). Crude synaptosomes from cerebral cortex, hippocampus and striatum were obtained and [³H] 5-HT uptake was carried. Values were analyzed by one-way ANOVA, followed by Newman-Keuls, p<0.05 was considered to be significant. Results: The statistical analysis revealed that treatment of mice with mangiferin (25 mg/kg) and fluoxetine (10 mg/kg) inhibited significantly [³H] 5-HT uptake by synaptosomes in cerebral cortex (47.68%, p< 0.01; 47.68%, p< 0.01), hippocampus (54.99%, p< 0.01; 42.50%, p< 0.01) and striatum (57.13%, p< 0.05; 34.03%, p< 0.01) of mice, respectively, when compared to the control group, as well as by fluoxetine treatment (positive control). Conclusions: These results suggesting an increase of 5-HT concentrations in the synaptic cleft, which can be associated with blocking the 5-HT transporter located on presynaptic nerve terminals, although the degree of selectivity for 5-HT transporter is variable. Thus, this xanthone should improve the effectiveness of these conventional antidepressants and it is helpful in the treatment of depression.

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