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## Passiflora incarnata L. Improves Spatial Memory, Reduces Stress, and Affects Neurotransmission in Rats.

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### Abstract

Passiflora incarnata L. has been used as a medicinal plant in South America and Europe since the 16th century. Previous pharmacological studies focused mainly on the plant's sedative, anxiolytic, and anticonvulsant effects on the central nervous system and its supporting role in the treatment of addiction. The aim of the present study was to evaluate the behavioral and neurochemical effects of long-term oral administration of *P. incarnata*. The passionflower extract (30, 100, or 300 mg/kg body weight/day) was given to 4-week-old male Wistar rats via their drinking water. Tests were conducted after 7 weeks of treatment. Spatial memory was assessed in a water maze, and the levels of amino acids, monoamines, and their metabolites were evaluated in select brain regions by high performance liquid chromatography (HPLC). We observed reduced anxiety and dose-dependent improvement of memory in rats given passionflower compared to the control group. In addition, hippocampal glutamic acid and cortical serotonin content were depleted, with increased levels of metabolites and increased turnover. Thus, our results partially confirmed the proposed mechanism of action of *P. incarnata* involving GABAA receptors. Copyright © 2016 John Wiley & Sons, Ltd.

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**KEYWORDS:** Passiflora incarnata; anxiety; glutamic acid; passionflower; serotonin; spatial memory

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