

Abstract

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Name: Indole alkaloids and their biological activity: genus *Banisteriopsis*

Diploma thesis

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The aim of this research diploma thesis was to summarize all known information about indole alkaloids isolated from plants of the genus *Banisteriopsis*. Phytochemically important species of the genus *Banisteriopsis* were processed with an overview of botanical and phytochemical characteristics. Also in this thesis you can find an overview of alkaloids isolated from these plants and description of their biological activities.

10 plant species of the genus *Banisteriopsis* were processed phytochemically and botanically and there were identified a total of 14 alkaloids and 2 alkaloid glycosides. These alkaloids are divided into two groups: β -carbolines and tryptamines. The most important group of alkaloids in the genus *Banisteriopsis* consists of harmala alkaloids with neuroprotective, antidepressant, antitumor, antiaddictive, anti-inflammatory, antimicrobial, antioxidant, antiplatelet and antidiabetic activity. Their biological activity consists in the inhibition of MAO, AChE, BuChE, DYRK enzymes and in their affinity to serotonin, dopamine, benzodiazepine and imidazoline receptors. The biological activity of harmine have been described in relation to its clinical use in the treatment of neurodegenerative diseases.

