

Abstract

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Title: Alkaloids of family *Amaryllidaceae*: genus *Lycoris*

Diploma thesis

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The aim of this diploma thesis was to summarize the findings about alkaloids which were isolated from *Lycoris* plants of *Amaryllidaceae* family. It contains a botanical characteristics of species of genus *Lycoris* which were studied phytochemically, a file of alkaloids which were isolated from these plants and findings about the biological activity of these compounds.

Within the genus *Lycoris* 11 species were studied phytochemically and 118 alkaloids were isolated from these plants. Alkaloids which were isolated from *Lycoris* plants are divided in several structural groups. The lycorine-, homolycorine-, crinine-, galanthamine- and pancratistatine-type alkaloids occur the most numerously. Anticancer, acetylcholinesterase-inhibitory and antimalarial activity of the alkaloids were described. The biological activity of alkaloids is connected with their structure. The most significant anticancer activity was observed in alkaloids from lycorine-, crinine- and pancratistatine-type. Acetylcholinesterase-inhibitory activity was pronounced the most in galanthamine-type alkaloids. The most noticeable antimalarial activity was observed in lycorine- and crinine-type alkaloids.

Keywords:

Lycoris, *Amaryllidaceae*, alkaloids, anticancer activity, antimalarial activity, Alzheimer's disease, cholinesterase inhibitors