

Abstract

Szárás, S.: *Mitragyna speciosa* Korth (Rubiaceae) – biological activity of Kratom secondary metabolites. Diploma thesis, Charles University in Prague, Faculty of Pharmacy in Hradec Králové, Department of Pharmacognosy and Pharmaceutical Botany, Hradec Králové, 2024

Mitragyna speciosa Korth, also known as kratom, is an evergreen tropical tree native to Southeast Asia. The leaves of the plant are used in traditional medicine by the native peoples in Thailand to treat disorders including pain, fever, diarrhea, to relieve fatigue and to improve physical performance. In recent years, kratom has become popular in countries of the West as an alternative to traditional opiates and for the treatment of opiate addiction. Phytochemical studies have revealed more than 54 biologically active alkaloids. The most studied alkaloids, mitragynine and 7-hydroxymitragynine, possess a promising opioid activity with a biased agonism at the receptors, leading to analgesia with a lower risk of adverse effects, along with additional pharmacological effects on monoamine systems and Ca²⁺ channels. Kratom also shows promising results in the treatment of diabetes and mental disorders. Nonetheless, kratom appears to form both physical and psychological dependence with withdrawal symptoms similar to classic opioids. Kratom use has been linked to seizures, hepatotoxicity and cardiotoxicity. Kratom may interact with coadministered medications via interaction at cytochrome P450, P-glycoprotein and uridine diphosphate glucuronosyltransferase. The aim of this thesis is to provide a comprehensive review of the available phytochemical data and the biological activity of kratom extract and its alkaloids, along with its benefits and potential toxicity.

Keywords: *Mitragyna speciosa*, kratom, mitragynine, biological activity, phytochemistry, alkaloids