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Begum, T.^a, Arzmi, M.H.^{b c d}, Helal Uddin, A.B.M.^a, Khatib, A.^a, Abbas, S.A.^e, Ahmed, Q.U.^a

Mitragyna speciosa Korth toxicity: Experimental findings and future prospects

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^a Drug Discovery and Synthetic Chemistry Research Group, Department of Pharmaceutical Chemistry, Kulliyah of Pharmacy, International Islamic University Malaysia, Pahang, Kuantan, Malaysia

^b Department of Fundamental Dental and Medical Sciences, Kulliyah of Dentistry, International Islamic University Malaysia, Pahang, Kuantan, Malaysia

^c Cluster of Cancer Research Initiative IIUM, International Islamic University Malaysia, Pahang, Kuantan, Malaysia

^d Melbourne Dental School, The University of Melbourne, Swanston Street, Victoria, Australia

^e Department of Pharmacology, Faculty of Pharmacy, Quest International University, Perak, Ipoh, Malaysia

Abstract

Mitragyna speciosa (Roxb.) Korth, locally known as kratom, is a traditional medicinal plant from Southeast Asia, with mitragynine as its principal alkaloid. Similar to other medicinal plants, kratom has side effects and toxicities, which have been documented in scientific studies and case reports. The mitragynine sale and possession of kratom are prohibited in Malaysia but legalized in Thailand. In the US, kratom is not lawfully marketed as a drug product, a dietary supplement, or a food additive in conventional food. Despite these restrictions, individuals continue to self-administer kratom to alleviate various health problems, often without a comprehensive understanding of the associated toxicities. Hence, the primary aim of this review is to provide a comprehensive overview of the toxicities associated with kratom, drawing from scientific studies, case reports, and other relevant sources. It also addresses the management of these toxicities, identifies gaps in existing studies, and discusses future perspectives. Therefore, a literature review search was conducted to gather essential information for this review. The in vitro studies focused on metabolizing enzymes, indirectly indicating kratom toxicity. By contrast, the in vivo results directly demonstrated kratom's toxic effects on the liver, kidneys, lungs, and brain. Case studies, primarily from Western countries, involved both single and combination use of kratom. Thus, by shedding light on these aspects, we aim to enhance awareness among healthcare professionals and the general public. Additionally, identifying existing gaps can guide future scientific studies. Since prevention is better than cure, this review holistically presents information about the toxicities associated with the use of kratom leaves, serving anyone seeking to understand and prevent kratom-related toxicities. © 2024 The Authors

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Cardiotoxicity; Hepatotoxicity; Kratom; *Mitragyna speciosa*; Mitragynine; Toxicity

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Correspondence Address

Ahmed Q.U.; Drug Discovery and Synthetic Chemistry Research Group, 25200 Kuantan, Malaysia; email: quahmed@iium.edu.my

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