

ABSTRACT

Kratom (Mitragyna speciosa) is a tropical plant native to Southeast Asia, particularly Indonesia, Malaysia, and Thailand, traditionally used to address various health issues such as coughs, colds, fever, and chronic diseases. The plant contains alkaloids, primarily mitragynine, which exhibit pharmacological effects such as analgesic and antiproliferative properties against cancer. Although extensive research has been conducted on mitragynine, little has been done to examine specific fractions, particularly those extracted with dichloromethane. Extraction using dichloromethane has proven effective in dissolving alkaloid compounds, followed by fraction separation using column chromatography based on polarity. This study aims to identify mitragynine in the fractions obtained from gravity column chromatography separation using various analytical techniques, namely TLC, FTIR, UV-Vis, TLC-MS, and HPLC, and to compare the identification results with existing literature. The research was conducted at the Tropical Disease Laboratory of the Integrated Laboratory Unit, Diponegoro University, from September 2024 to June 2025. Extraction was performed using the maceration method with methanol, followed by dechlorophyllization to separate the hydroalcoholic and green gummy fractions. The hydroalcoholic fraction was evaporated to obtain the extract, which was then used for further analysis. Alkaloid separation was performed using liquid-liquid partitioning and gravity column chromatography to obtain fraction H, which was suspected to contain the highest amount of mitragynine. Analysis results from TLC, UV-Vis, FTIR, TLC-MS, and HPLC indicated that fraction H contained mitragynine as the main component at a concentration of 47.9%, although the purity of this compound still needs to be improved through further research.

Keywords: Mitragyna speciosa, mitragynine, extraction, column chromatography

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