

**ANTI-OBESITY AND ANTI-DIABETIC PROPERTIES OF
EXTRACTS KAFFIR LIME LEAVES (*Citrus hystrix* DC)**

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ABSTRACT

ANTI-OBESITY AND ANTI-DIABETIC PROPERTIES OF EXTRACTS OF KAFFIR LIME LEAVES (*Citrus hystrix* DC)

The leaves of the Rutaceae family plant known as Kaffir lime (*Citrus hystrix*) are used frequently in traditional medicine. Kaffir lime leaves are known to have medicinal properties, and have been used in traditional medicine to treat various ailments such as coughs, colds, and digestive issues. Despite the prevalence of synthetic drugs for managing obesity and diabetes, their high costs and adverse effects underscore the importance of investigating natural remedies. This study investigated the potential anti-obesity and anti-diabetic properties of extracts of Kaffir lime leaves. The extraction process using the maceration method with ethanol, ethyl acetate, and n-hexane solvents have yielded 8.03%, 2.21%, and 1.24% of crude extracts respectively. α -amylase inhibitory and reducing sugar content assays were carried out to determine the anti-diabetic activity. The inhibitory activity of the extracts towards α -amylase was evaluated and depicted by using a half maximal inhibitory concentration (IC_{50}) value, in which the ethyl acetate extract showed the highest inhibition with $IC_{50} = 0.16$ mg/mL. Meanwhile, the reducing sugar content was found highest in the ethanolic extract with the value of 142 ± 8.56 mg GE/g dry extract weight. The ethanolic extract of kaffir lime leaves was further analyzed for anti-obesity activity using pancreatic lipase assay which exhibits an $IC_{50} = 0.09$ mg/mL. These results contribute to the growing body of research on natural products and suggest the potential of Kaffir lime leaves extracts as a candidate for the treatment of obesity and diabetes.