

**ANTI-OBESITY AND ANTI-DIABETIC
PROPERTIES OF EXTRACTS OF ALOE VERA
(*Aloe barbadensis*) ROOTS**

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ABSTRACT

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Globally, the prevalence of diabetes and obesity is rising, and both conditions are associated with major health concerns like cancer and heart disease. This emphasises the necessity of successful interventions. The roots of Aloe vera (*Aloe barbadensis*) seem to be a potential option, even with the availability of pharmacological treatments. For the first objective are to extract the roots of Aloe vera by using Soxhlet extraction method. Next, to evaluate the anti-diabetic and anti-obesity properties of the crude extract by using α -amylase and pancreatic inhibitory assays respectively. The last objective is to determine the total phenolic content of the crude extract via Folin-Ciocaltue calometric method. Aloe vera roots from the Arau nursery went through to a 4-hour Soxhlet treatment with methanol serving as the solvent. The α -amylase inhibitory required preincubation with varying plant extract quantities, and absorbance at 630 nm was measured. Concurrently, the pancreatic lipase inhibitory assay employed a titrimetric technique, in which a 0.5M NaOH solution was used to titrate the combination after incubation. Aloe vera roots extracted using the Soxhlet extraction method yielded a 34.41% of crude extract. For α -amylase inhibition, the extract with the highest concentration of 160 $\mu\text{g/ml}$ had the most significant activity of 53.3% and the IC_{50} value of 149.19 $\mu\text{g/ml}$. These value were comparable to that of Acarbose, which was utilized as the positive control. Meanwhile, the extract with the concentration of 500 $\mu\text{g/ml}$ has demonstrated 61.54% of pancreatic lipase inhibition with IC_{50} value of 381.67 $\mu\text{g/ml}$. The results of both α -amylase and pancreatic lipase inhibitory assays exhibited dose dependent relationship, in which increased concentration of Aloe vera roots extract produced higher anti-dibetic and anti-obesity effects. The extract also showed notable amount of total phenolic content (19.02 mgGAE/g extract), which is considered a good soucer of antioxidants. Therefore, results indicate that aloe vera roots may be a good natural substitute or addition to pharmaceutical treatments for diabetes and obesity, which calls for more investigation into the plant's therapeutic potential and modes of action.

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