

ABSTRACT

ANTIHYPERGLYCEMIC ACTIVITY OF ETHANOL EXTRACT DURIAN FRUIT PEEL (*Durio zibethinus*) ON ALLOXAN-INDUCED WHITE RATS.

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Pathological hyperglycemia is a medical condition characterized by an abnormal and persistent increase in glucose (sugar) levels above normal levels, caused by metabolic disorders such as diabetes mellitus. Blood glucose levels that exceed normal limits can increase the production of free radicals that trigger damage to the pancreas. Durian peel contains bioactive compounds that have the potential to be used as antihyperglycemic agents in the treatment of diabetes mellitus. However, research on the effects of durian peel ethanol extract on biochemical parameters and pancreatic microanatomy in hyperglycemia models is still limited, so further studies are needed to confirm its potential in vivo. This study aimed to analyze the effect of durian peel ethanol extract administration on blood glucose levels, MDA levels, and the microanatomy of the pancreas in male Sprague-Dawley rats induced with alloxan. This study used a completely randomized design with 25 male white rats of the Sprague-Dawley strain, divided into 5 treatment groups, namely given distilled water (K), given alloxan at a dose of 150 mg/kg BW (K-), given alloxan at a dose of 150 mg/kg BW + ethanol extract of durian fruit peel at doses of 500, 750, and 1000 mg/kg BW (P1, P2, and P3). The treatment was administered for 28 days, after which the test animals were checked for blood glucose levels and terminated to obtain blood and pancreatic samples. The pancreatic histology preparations were made using the paraffin method with hematoxylin and eosin staining. The variables observed in the pancreatic microanatomy were the diameter and histopathology of the islets of Langerhans. The results showed that there were significant differences ($P < 0.05$) between the K-treatment group and P1, P2, and P3 in terms of blood glucose levels and MDA. The diameter of the islets of Langerhans also showed the same results. The conclusion of this study indicates that ethanol extract of durian fruit peel has antihyperglycemic and antioxidant activities and has the potential to improve the pancreas.

Keywords: Malolaldehyde, pancreatic microanatomy, pathological hyperglycemia