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ANTI-DIABETIC EFFECT OF PEARL MILLETS GRAINS AND DRIED GERMINATED PEARL MILLETS GRAINS ON STREPTOZOTOCIN INDUCED DIABETIC RATS.

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ABSTRACT

This study investigated the effect of pearl millet (*Pennisetum glaucum L.*) diet feeding on diabetic induced by streptozotocin (STZ) in albino rats. The body weight of the rats were recorded, glucose was estimated, liver and pancreas histopathology examination and hepatic marker enzyme i.e. aspartate aminotransferase (AST), alanine aminotransferase (ALT), total protein (TP) and alkaline phosphatase (ALP) were evaluated. The levels of lipid parameters i.e. total cholesterol (T. Chol), triglyceride (Trig) and high density lipoprotein (HDL) and kidney function (urea and creatinine) were also estimated. The results showed a significant decrease in the body weight, HDL and total protein in STZ group compared to control, on the other hand a significant increase was observed in glucose, liver markers, kidney function, total cholesterol and triglyceride compared to control. Groups fed on dried millet grains or dried germinated millet (30% of the basal diet) showed a significant ($p < 0.05$) improvement of the body weight, HDL and total protein, decreasing liver markers, kidney function, total cholesterol and triglyceride, the reduction of glucose was more significant in dried germinated millet group. Histopathology examination of rat liver showed focal necrosis of hepatocytes associated with inflammatory cells infiltration damage caused by administered STZ and it was recovered by feeding rats with dried millet or dried germinated pearl millet diet, also STZ caused revealed vacuolation and necrosis of cells of islets of Langerhan's in pancreases histology which recovery by millet diet. The pearl millet diet was found to have significant protection effect on the liver and pancreas against diabetes induced by STZ by enhancing the level of glucose, lipid profile, liver enzymes activities and kidney function.

Key words: Pearl millet; germination ; Streptozotocin; diabetic; Histopathology.