

Effect of Fractions of *Balanites aegyptiaca* Leaf Extracts On the Activities of Glucose Metabolizing Enzymes in Diabetic Rats

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(Received July 01, 2019; Revised August 19, 2019; Accepted August 21, 2019)

Diabetes mellitus is a disorder associated with alteration in the activities of enzymes involved in glucose metabolism which disturbs maintenance of normal glycemia. Several plants extract were reported to have exerted significant regulatory effect on the activities of the enzymes. This study investigated effect of fractions of *Balanites aegyptiaca* leaves extract on the activities of key enzymes involved in glycolysis, gluconeogenesis, glycogenolysis and glycogenesis in diabetic rats. Fractions of plant leaves extract namely; diethyl ether, diethyl ether/chloroform, chloroform and methanol fractions were obtained via column fractionation of ethanol-aqueous extract of *Balanites aegyptiaca* leaves and administered separately to diabetic rats in group 1-4, group 5, 6 and 7 are positive, negative, and normal control rats groups. Enzymes activities were assayed from supernatant of liver homogenates. The study recorded a significant ($P < 0.05$) reversal effect in the activities of glucose metabolic enzymes in diabetic treated rats in comparable to untreated diabetic rats. The fractions were able to enhanced the activities of glucokinase, phosphofructokinase, pyruvate kinase and glycogen synthase but depresses the activities of fructose-1,6-bisphosphatase, glucose-6-phosphatase phosphenol pyruvate carboxylkinase and glycogen phosphorylase. Liver glycogen and protein were elevated in the diabetic treated rats. The methanol fraction is identified to be the most potent. In conclusion, the study suggest fractions of *Balanites aegyptiaca* leaves extract exert glucose enzymes regulatory effect to combat diabetic mellitus in rats.

Keywords: Effect, Fractions, *Balanites aegyptiaca*, Leaves extract, Glucose enzymes, Diabetic Rats

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