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THE GLYCEMIC ROLE OF IMMATURE CAROB FRUIT ON *IN VITRO* A-AMYLASE/A-GLUCOSIDASE INHIBITION AND *IN VIVO* DIABETES-INDUCED RATS

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In Yemen, the immature Carob Pods (ICP) have been traditionally used for the control of high blood glucose levels in diabetics, but its hypoglycaemic activity has not yet been evaluated. The current study has assessed the glycaemic properties of methanolic extract of ICP against *in vitro* key enzymes linked to type 2 diabetes mellitus (amylase and glucosidase) and *in vivo* diabetes induced rats. To induced diabetes mellitus in rats, 55mg/kg streptozotocin and 210mg/kg nicotinamide were used to intraperitoneally injection of 24 male Sprague-Dawley rats and distributed randomly into high dose (1000mg/kg extract, n=6) low dose (500mg/kg extract, n=6) positive control (10mg/kg glibenclamide, n=6) and untreated diabetic control (5ml/kg distilled water, n=6) groups. Subsequently, all groups have been treated with a single oral daily dose during 28 days of the treatments. Further, a normal control group (n=6) has been added and receiving 5ml/kg distilled water. The ICP have exerted an inhibitory effect against α-glucosidase (IC50 97.13±4.11µg/ml) and α-amylase (IC50: 92.99±0.22µg/ml) as compared to α-acarbose. In the diabetic-induced rats, high dose of ICP could decrease significantly the fasting blood sugar as compared to the untreated diabetic control. In conclusion, the methanolic extract of ICP could inhibit the *in vitro* α-amylase and α-glucosidase enzymes and exert a hypoglycemic effect in diabetes-induced rats.

BIOGRAPHY

Mousa Qasem is a Master student at Department of Pharmacy, Faculty of Medicine, University of Malaya. He is a researcher in pharmacology and drug discovery, in the field of diabetes mellitus. He published an ISI article related to type 2 diabetes mellitus. He is serving as a reviewer for reputed journals *"Scientific Reports, Chines Herbal Medicines (CHM) and Nutrition & Food Science"*.

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