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ABSTRACT

Punica granatum L., commonly known as pomegranate and belonging to the family of Punicaceae, is a unique plant. Two varieties of pomegranate including Manfaloty and Wonderful were used in this study. The juice powders (JP) subjected to freeze-drying and peel powder extracts (PPE) of the two varieties were used as hypoglycemic and hypocholesterolemic agents by using albino rats. The juice powder was used in two different concentrations (1 and 1.5 g/kg/day/ rat), meanwhile the peel powder extract was used in only one concentration (0.2 g/kg/day/rat). Results show the effect of JP and PPE on the glucose level of diabetic rats. The superior effect was with G6 rats administrated with 0.2 g MPE/kg/day/rat (Manfaloty peel extract) followed by G9 0.2 g WPE/kg/day/rat (Wonderful peel extract). On the other hand results show the effect of JP and PPE on the level of total cholesterol, LDL, HDL and triglycerides in rats serum as hypocholesterolemic agents. These results show that G5 (HFD +1%cholesterol+ 0.2g MPE/kg /day/ rat) recorded the best results of all the aforementioned experiments, this could be attributed to the phenolic content in peel powder extract of pomegranate. The histopathological examination of Pancreas show that G6 and G9 of diabetic rats administrated orally with 0.2g MPE or 0.2 g WPE/kg b.w/day had improvement in pancreatic damage and there was marked improvement in islets structure, meanwhile, Histological examination of liver show that G5 and G8 of rats fed HFD +1% cholesterol administrated orally 0.2g MPE or 0.2 g WPE/kg b.w/day had improvement in histological structure and showed an almost normal structure with a regular arrangement of hepatic cell cords and exhibited a reduction in fat accumulation. Chicken patties prepared with 1.5g MJP or 1.5g WJP recorded the highest values for quality characteristic and microbiology examination as well as sensory evaluations.

Keywords: pomegranate, juice powder, peel, hyperglycemic, antihyperlipidemic, rats.