

**Effect of Low Fat Diet with or Without Some Types of Berries Fruit on Rats Suffering from Hypercholesterolemia and Diabetes**

**Dalia Mohamed Talatt Abdel-khalik**

Home Economics Dept., Faculty of Specific Education, Fayoum University, Egypt.

**Abstract**

This study aimed to investigate the effect of low fat hypercholesterolemic diet with or without white mulberry, black mulberry and blueberries fruits on rats suffering from hypercholesterolemia and diabetes. In addition to determined the chemical composition and phenolic compounds. Fifty four male albino rats (Sprague Dawley) were divided into two main groups. The first main group (6 rats) was fed basal diet, as negative control. The second main group (48 rats) fed 6 weeks on hypercholesterolemic diet containing casein 24%, soybean oil 25%, cholesterol 1%, choline chloride 0.4%, salt mixture 10%, vitamin mixture 2%, cellulose 8% and the remainder corn starch, to induce hypercholesterolemia, after this period, total cholesterol and triglycerides were determined in normal and hypercholesterolemic groups to insure the induction of hypercholesterolemia. Then the second main group was injected with alloxane (150 mg / kg body weight) to induce hyperglycemia. After four days, serum glucose was determined in the first and second main groups to ensure the induction. The second main group divided into 8 subgroups, as a following: Subgroup (1) fed on hypercholesterolemic diet (positive control group)<sup>a</sup>. Subgroup (2) fed on hypercholesterolemic diet containing half amount of soybean oil 12.5% and used as low fat hypercholesterolemic diet (LFHD) (positive control group)<sup>b</sup>. Subgroup (3 and 4,5,6,7 and 8) fed on low fat diet as described in subgroup(2), but containing 2.5 and 5% white mulberry, respectively. Subgroup (5 and 6) fed on low fat diet as described in subgroup (2), but containing 2.5 and 5% black mulberry, respectively and Subgroup (7 and 8) fed on low fat diet as described in subgroup (2), but containing 2.5 and 5% blueberries, respectively. The highest decrease in BWG% and liver and kidney weights/ body weight% recorded for hypercholesterolemic and diabetic group which treated with 5% blue berries. The best results in lipid profile recorded for the group which treated with 5% blue berries, followed by the groups which treated with 5% black mulberry and 5% blue berries,

respectively. The highest improvement in serum glucose and liver enzymes recorded for the group which treated with LFHD containing 5% blue berries, followed by the groups which were fed on LFHD containing 2.5% blue berries and 5% black mulberry, respectively. The results revealed that, blue berries and black mulberry have a stronger effect in improving kidney function than white mulberry. White mulberry, black mulberry and blueberries fruits improved the nutritional and biochemical parameters on rats suffering from hypercholesterolemia and diabetes.

**Keywords:**berries fruits - lipid profile – glucose - liver enzymes - kidney function.