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Biochemical, nutritional and histological study of feeding with two varieties of mushrooms on experimentally induced anemia and hypercholesterolemia in albino rats

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THESIS

Submitted for Fulfillment of The Philosophy Doctor Degree in Home Economics

Nutrition and Food Science

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ABSTRACT

Biochemical, Nutritional and Histological Study of Feeding With Two Genera of Mushrooms on Experimentally Induced Anemia and Hypercholesterolemia in Albino Rats

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In the last decades, there is an increase in numbers of patients of anemia, heart stroke like angina pectoris,arteriosclerosis and cancer.

Hence, we are looking for a new sources of food that will contribute to filling the food gap by examining the impact of nutrition on two mushroom genera common their agriculture in Egypt, which play an important role in decreasing the rates of cholesterol and lack of anemia and Egypt started the cultivation of mushroom in the eighties and increased interest in Egypt took place due to its many benefits, so the ministry of agriculture is currently interested in spreading mushroom. Mushrooms are rich and good sources of protein, amino acid, vitamins like vitamin B and D, potassium and iron. So the present investigation was carried out in an attempt to clarify the effect of the two studied mushroom genera namely: (*Agaricus bisporus*) and (*Pleurotus ostreatus*) on blood serum glucose, triglycerides, total cholesterol, HDL cholesterol, LDL cholesterol and VLDL cholesterol of the experimental rats (induced hypercholesterolemia) and the effect of the two studied mushroom genera in experimental rats (induced anemia) after feeding with two

studied mushrooms genera as well as in the control diets.

The results revealed that there were significant differences among all six studied groups at the experimental rats in body weight gain and there were significant differences between untreated group and all the four studied groups at ($P<0.05$) in serum total cholesterol, HDL-cholesterol, LDL-cholesterol, VLDL-cholesterol, blood serum glucose and triglycerides.

On the other hand, there were significant differences among the six studied groups at ($P<0.05$). Likewise, there were an increase in complete blood picture in Hb, RBCs, MCV, MCH, MCHC and decrease in HCT and there were significant differences in the activity of AST and ALT enzymes in the blood serum of the experimental rats after treating with the two studied mushroom genera (*Agaricus bisporus*) and (*Pleurotus ostreatus*).

In addition, the present investigation revealed that feeding the experimental animals with the two studied mushroom genera recorded histopathological changes in liver, kidney and spleen.

Experiment were carried out to clarify the effect of nutrition with the two studied mushroom genera on curing the infected albino rats with carcinogenic substance (1,2 dimethylhydrazine dose 20 mg/kg body weight).

The data obtain in the present investigation proved that the mushroom genera (*Pleurotus ostreatus*) was very effective in reducing the carcinogensity of albino rats. However, the nutrition with (*Agaricus bisporus*) genera revealed insignificant effect in this concept.

Key words:

Mushroom, *Agaricus bisporus* , *Pleurotus ostreatus* , chemical composition, mineral content, amino acids composition, fatty acids composition, vitamins, serum glucose, triglycerides, cholesterol, anemia, cancer, histopathology, liver, kidney, spleen and lung.

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CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF MICROGRAPHS