EVALUATION OF HYPOGLYCEMIC AND HYPOLIPIDEMIC POTENTIALS OF WHITE BEANS, ONION AND DATE SEEDS ON BLOOD SERUM OF RATS

By

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B.Sc. Agric. Sci. (Food Science); Fac. Agric.; Cairo Univ., Egypt, 2009

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APPROVAL SHEET

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ABSTRACT

In the present study, the hypoglycemic, hypolipidemic, and hepatoprotective effect of white bean, date seeds extract and onion extract on alloxan induced diabetic rats was investigated. Forty five male albino rats were used in this experiment. Rats fed on white bean, date seeds extract and onion extract showed marked reduction of glucose, total cholesterol, triglycerides, LDL- cholesterol and VLDL-cholesterol when compared to positive control. The phytochemical analysis revealed the presence of flavonoids, tannins, glycosides, polyphenol and saponins in all used materials. Onion extract has the most important hypoglycemic and hypolipidemic effects on rat's serum. It's hypoglycemic and hypolipidemic effects could represent a protective mechanism against the development of hyperglycemia and hyperlipidemic characteristic of diabetes mellitus. Also liver function have been improved and there were significant reduction in aspartate aminotransferase (AST) and alanine aminotransferase (ALT), comparing with positive control group, as treatment of diabetes rats with white bean, date seeds extract and onion extract could restore the changes of their enzymes near to their normal levels.

Key words: Diabetic, white bean, onion extract, date seed extract, hypoglycemic, lipid profile, hypolipidemic,phytochemical

DEDICATION

I dedicate this work to my parents and brother for their patience, help and for all the support they lovely offered during my post - graduation studies.

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INTRODUCTION

Diabetes mellitus (DM) remains a major health care problem worldwide both in developing and developed countries .Many factors, including age, obesity, sex, and diet, are involved in the etiology of DM. Nowadays, drug and dietetic therapies are the two major approaches used for prevention and control of DM. Compared to drug therapy, a resurgence of interest in using diet to manage and treat DM has emerged in recent years. (Xinyan et al 2017)

Diabetes is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of different organs, especially the eyes, kidneys, nerves, heart, and blood vessels. Long-term complications of diabetes include retinopathy with potential loss of vision; nephropathy leading to renal failure; peripheral neuropathy with risk of foot ulcers, amputations, and Charcot joints; and autonomic neuropathy causing gastrointestinal, genitourinary, and cardiovascular symptoms. Patients with diabetes have an increased incidence of atherosclerotic, cardiovascular, peripheral arterial and cerebrovascular disease. Hypertension and abnormalities of lipoprotein metabolism are often found in people with diabetes. (American Diabetes Association, 2014).

Hypercholesterolemia considered being a lipoprotein metabolic disorder characterized by high serum low density lipoprotein and blood cholesterol. It might pose a major problem to many societies as well as