

PDF - EVALUATING THE EFFECT OF ETHANOLIC LEAVES EXTRACT OF TRICHOSTEMA LANCEOLATUM ON THE LIPID PROFILE LEVEL OF ALLOXAN INDUCED DIABETIC ALBINORATS - researchcub.info

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Medicinal plants, also called medicinal herbs have been discovered and used in traditional medicine practices since prehistoric times. Plants synthesize hundreds of chemical compounds for functions including defence against insects, fungi, diseases and herbivorous mammals. The World Health Organization estimates that some 80 percent of the world's population depends mainly on traditional medicine (Tilburt, 2008). Medicinal plants are often tough and fibrous, requiring some form of preparation to make them convenient to administer. Common methods for the preparation of herbal medicines include decoction, powdering and extraction with alcohol in each case yielding a mixture of substances (Dharmananda, 1997) when a drug is identified in a medicinal plant, commercial quantities of the drug may either be synthesized or extracted from plant material (Atanasov, 2015).

Trichostema lanceolatum or Vinegar weed is one of such plants used for therapeutic purpose. It belongs to the family of Lamiaceae. It grows in chaparral, coastal sage scrubs (Calflora, 2018).

A decoction or tea made from the leaves and flowers of *trichostema lanceolatum* was taken to treat colds, stomachaches, headaches, bladder problems and malaria, the tea was gargled to treat inflammation of the throat. Steam from hot infusions was sniffed into the nasal passages to treat colds, coughs, headaches and nose bleeds. Sitting over a steaming decoction of the leaves treated uterine trouble. The raw or boiled leaves were crushed into a poultice to treat wounds (Bocek, 1984). Chewed leaves were stuffed around and aching tooth.

Diabetes mellitus is a group of metabolic disorders caused by increase in blood glucose level and defects in insulin resistance, insulin action.

Insulin deficiency causes higher metabolism of free fatty acid and can cause disorder in lipid metabolism. Diabetes mellitus has been recognized as a clinical syndrome since ancient times and it remains a crippling global health problem today. Diabetes mellitus is a group of heterogeneous, autoimmune, hormonal and metabolic disorders often accompanied by hypertension, hyperlipidemia and obesity.

Type 1 diabetes mellitus also called insulin dependent diabetes mellitus (IDDM) occurs when the body cannot produce insulin which is needed to control blood glucose level. Type II diabetes mellitus also called non-independent diabetes mellitus (NIDDM) is more common, it occurs when the body produces enough insulin. The devastating action of diabetes mellitus qualifies it as a disease of major public health concern, and an epidemiological survey showed that it is the seventh leading cause of death worldwide (Samdi, 2007). Additionally, diabetes mellitus prevalence has been increasing steadily all over the world, it is estimated that 366 million people had diabetes mellitus in 2011, and 46 million deaths in 2011 was caused by diabetes mellitus, by 2030 the number of people living with diabetes mellitus would have risen to 552 million. Long term complications from diabetes mellitus include heart disease and stroke. A lipid profile is a direct measure of three blood components: cholesterol, triglycerides, and high density lipoproteins (HDLs). Cholesterol is a vital substance that the body uses to produce digestion aiding material, hormones and cell membranes. Cholesterol and triglycerides are transported in the blood by combinations of lipids and proteins called lipoproteins. HDLs and the "good" or "healthy" cholesterol are lipoproteins made mostly of proteins and

little cholesterol. HDLS help to clear cholesterol deposits in blood vessels left by low density lipoprotein LDLs.

Diabetes trends to lower “good” cholesterol levels and raise triglyceride and “bad” cholesterol levels which increases the risk for heart disease and stroke. The prevalence of dyslipidemia in diabetes mellitus is 95%. (Chattanda, 2008) the dyslipidemia is a major risk factor for coronary heart disease (CHD) and other complications of atherosclerosis, diabetes dyslipidemia comprises a triad of raised triglycerides, reduced high density lipoprotein (HDL) and excess of small dense low density lipoprotein (LDL) particles.

The lipid abnormalities are prevalent in diabetes mellitus because insulin resistance or deficiency affects key enzymes and pathways in lipid metabolism.

There are several synthetic antidiabetic medicinal preparations of notable capacity to act as agents of glycemic control. However, from toxicological standpoint, alternative herbal formulation remedies are sometimes preferred to synthetic antidiabetic drugs because of its minimal or no side effects.

Since *Trichostema lanceolatum* has been reported by several researchers to lower blood glucose level, this study is therefore geared towards evaluating the possible effect of *Trichostema lanceolatum* on the known dyslipidemia associated with diabetes mellitus.

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