INTRODUCTION

Diabetes is defined as a state in which the homeostasis of carbohydrate and lipid metabolism is improperly regulated by the pancreatic hormone, insulin, ultimately resulting in increased blood glucose level. It is the world’s largest endocrine disorder and is one of the major killers in recent times (Bhat M. et.,al.,2008). According to World Health Organization (WHO), the worldwide global population is in the midst of a diabetes epidemic with people in Southeast Asia and Western Pacific being mostly at risk. The number of cases for diabetes which is currently at 171 million is predicted to reach 366 million by the end of 2030(WHO.,2006). Therefore, it is necessary to search for new drugs and interventions that can be used to manage this metabolic disorder. The most prevalent form of diabetes is non-insulin dependent diabetes mellitus (type 2).

Hyperlipidemia (mainly increased level of total cholesterol (TC), triglycerides (TG) and low-density lipoprotein (LDL) cholesterol along with decrease in high-density lipoprotein (HDL) cholesterol) is the predictor of coronary artery disease (CAD). Hyperlipidemia is an important risk factor in the initiation and progression of atherosclerotic plaque. (Harrison et al.,2003).

Accumulation of lipids in diabetes is mediated through a variety of derangements in metabolic and regulatory processes, especially insulin deficiency, thereby rendering the diabetic patient more prone to hypercholesterolemia and hypertriglyceridemia. One of the major pathogenesis of lipid metabolism disturbances in diabetes is the increased mobilization of fatty acids from adipose tissue and secondary elevation of free fatty acid level in the blood. Excessive lipolysis has been found to occur during diabetes. One of the consequences of excessive mobilization of fatty acid is the production of ketone bodies in the liver. The excessive lipolysis in diabetic adipose tissue leads to increase free fatty acids in circulation. They enter the liver and are esterified to form triglycerides. Fatty acids are required for both the structure and function of every cell in the body and they form an important component of cell membranes. Several authors have reported that, the fatty acid compositions of various tissues are altered in both experimental and human diabetes.

Allopathic antidiabetic and antihyperlipidemic drugs are available at large in the market but the side effects and contraindications of these drugs have marred their popularity. The traditional medicinal antidiabetic and antihyperlipidemic plant have gained importance to fill the lacunae created by the allopathic drugs. Ayurveda, the Indian system of traditional medicine, provides a
number of medicinal plants to treat type 2 diabetes along with hyperlipidemia. Traditional knowledge and historic literatures on medicine play an important role in the discovery of novel leads from medicinal plants (Batra S, et al., 2000).

*Euphorbia neriifolia* Linn. is also known as Common Milk Hedge in English, Sehund and Thohar in Hindi belonging to family Euphorbiaceae. *Euphorbia neriifolia* is a large succulent shrub, with stipular thorns and is found in throughout the Deccan peninsula of India. It is believed to be a native of India and Deccan peninsula is the country of origin (South India). It is commonly found in rock ground, among rock crevices of hills; extensively cultivated in the Bengal for hedges and elsewhere in native villages. Today, it is widely distributed throughout the world (Sharma V, et al., 2011).

Pharmacological studies and traditional uses of *Euphorbia Neriifolia* shows medicinal values, such as antibacterial, antifungal, antiviral, antiparasitic, antiarthritic, antidiabetic, anticonvulsant, antioxidant, wound healing, immuno-modulatory, radioprotective, spasmodic, aphrodisiac, anticancer, and diuretic properties due to the presence of phytoconstituents like lectin, quercetin, saponin, flavonoids, triterpenes, diterpenes, anthocyanins, alkaloids and glycosides (Sharma V, et al., 2011).

In the present investigation, *Euphorbia neriifolia* is used to evaluate the anti diabetic and antihyperlipidemic activity.