

EFFECT OF *Aloe Barbadensis* M. ON ALLOXAN INDUCED DIABETIC NEPHROPATHY IN RATS

S. Kowsalya and P. Venkatalakshmi*

P.G. Department of Biochemistry, Sengamalathayaar Educational Trust Women's College,
MANNARGUDI – 614 001 Tamil Nadu.

An attempt was made to validate the nephroprotective effect of *Aloe barbadensis* in alloxan induced diabetic rats. Intramuscular administration of single dose (150 mg/kg body weight) of alloxan caused increase in the levels of glucose, glycosylated haemoglobin, microalbuminuria, urine albumin and decrease in the levels of protein, albumin, globulin considerably when compared to normal. Oral administration of *Aloe barbadensis* (300mg/kg body wt.,) brought back the altered biochemical parameters to near normal.

INTRODUCTION

Diabetes mellitus is a syndrome of disordered metabolism, usually due to a combination of hereditary and environmental causes, resulting in abnormally high blood sugar levels (hyperglycemia) (Dhanabal *et al.*, 2004). Blood glucose level is controlled by a complex interaction of multiple chemicals and hormones in the body, including the hormone insulin made in the beta cells of the pancreas. The two types of DM are Type I (IDDM) and Type II (NIIDM). In former the body loses its ability to produce insulin, in latter insulin secretion is inadequate or insulin resistance occurs.

Generally, the disease is characterized by hyperglycaemia, glycosuria, polydipsia, polyuria and ketoacidosis. Associated clinical complications are nephropathy, neuropathy, capillary basement membrane thickening and accelerated atherosclerosis (Genuth and Alberti, 2003). The long term complication of diabetes called as Diabetic nephropathy. It has higher consequences, also known as Kimmelstiel-Wilson syndrome and intercapillary glomerulonephritis, which is a progressive kidney disease caused by angiopathy of capillaries in the kidney glomeruli. It is characterized by nephrotic syndrome and nodular glomerulosclerosis. (Kimmelstiel *et al.*, 1936).

An early manifestation of diabetic nephropathy is microalbuminuria, which is defined as elevated urinary albumin excretion below the level of clinical albuminuria undetected by albustic. Alloxan is commonly used to induce diabetes in experimental animals due to its ability to destroy the cells of pancreas (Dunn *et al.*, 1943). Many traditional herbs were analysed for their antidiabetic potential in the experimental animals. *Aloe barbadensis* has been significantly used as a cure for treating various diseases. Studies have found that there are 75 ingredients contained in the aloe leaves. These ingredients have a variety of medicinal benefits.

It has long chain mannan polysaccharides, which boost the immune system and

* Corresponding Author