



**ANTIDIABETIC ACTIVITY AND CHEMICAL CHARACTERIZATION OF AQUEOUS
ROOT EXTRACT OF *CARICA PAPAYA* IN ALLOXAN INDUCED DIABETIC RATS**

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ABSTRACT

Diabetes mellitus is a growing health problem in most countries and its incidence is considered to be high all over the world. So, the purpose of this study was to evaluate antidiabetic and chemical characterization of aqueous roots extracts of *Carica papaya* in alloxan induced diabetic rats. Diabetes was confirmed after 5 days of single intraperitoneal injection of alloxan (120 mg/kg) in albino wistar rats. In this study we have taken an aqueous root extracts of *Carica papaya* (100 and 200 mg/kg) and glibenclamide (10 mg/kg, p.o.) orally administered daily for 15 days, blood was withdrawn for glucose determination on 0, 1, 10 and 15 days respectively. At doses of 100 and 200 mg/kg showed significant in blood glucose when compared to diabetic control group. We concluded that aqueous extracts of roots of *Carica papaya* possess Antidiabetic activity..

KEYWORDS: *Carica papaya*, Antidiabetic Activity, Alloxan, Glibenclamide, Aqueous extract.

INTRODUCTION

Diabetes mellitus is represented by hyperglycaemia, lipidaemia, and oxidative stress; it predisposes affected individuals to long term complications affecting the eyes, skin, kidneys, nerves, and blood vessels.^[1-4] Type 2 diabetes mellitus affected individuals more prone with cardiovascular diseases risk rather than individuals not affected with type 2 diabetes mellitus. Diabetes also causes risk of blood pressure and LDL- cholesterol level. Globally diabetes has spread more frequently due to modern lifestyle and it also can be linked to an obesity and sedentary population.^[5-7] Alloxan (2, 4, 5, 6-pyrimidinetetrone) is an oxygenated pyrimidine derivative and toxic glucose analogue. It is present as alloxan hydrate in aqueous solution.^[8-10]

Carica papaya, an herbaceous plant, member of the small family Caricaceae. This plant is widely cultivated for its edible pleasant fruit, which provides good nutritional value and easy digestion. Infusions made from different parts of the plant including roots have been used as therapeutic remedies due to their medicinal properties.^[11] There is evidence that *C. Papaya* roots reduce symptoms of asthma, worming and dysentery. Moreover, *C. papaya* root extracts have long been used as remedy for cancer and infectious diseases.^[12-13] The root aqueous extract accelerates wound healing.^[14-15] On the basis of literature review and tribal information gathered from Kerakat, Jaunpur, Uttar Pradesh that the plant *Carica papaya* (Papita) have reported the use of the roots for the management of diabetes mellitus. However,

there is no scientific evidence to support this claim. Hence, the objective of this study was to ascertain the scientific basis for the use of *Carica papaya*. (Caricaceae) in the management of diabetes using alloxan induced diabetic rats.

MATERIALS AND METHODS

Chemicals

Alloxan monohydrate was purchased from Sigma-Aldrich Pvt. Ltd (New Delhi, India). Glibenclamide was purchase from local market of Allahabad. All chemicals used including the solvents, were of analytical grade.

Collection of plant material

The roots of *Carica papaya* were collected from the local area of Allahabad, Uttar Pradesh, India in the month of May to June 2016. Authenticated and specimen was deposited in the herbarium of botanical survey of India, Allahabad Uttar Pradesh, Ref. No.-98641.

Preparation of extracts

The *Carica papaya* roots was dried under shade, powdered with a mechanical grinder and passed through a 40-mesh sieve. The successive solvent cold extraction method used to obtain various extracts including petroleum ether, chloroform, ethyl acetate, ethanol and aqueous extracts. The solvents were removed from the extracts under reduced pressure by using a rotary vacuum evaporator. The percentage yield of extracts was calculated and stored in air and water proof containers. The brown extract was obtained and solubility studies