

ABSTRACT**Background & Objectives:**

Apium graveolens.L commonly known as 'Ajmoda' in Sanskrit is cultivated in Himalayan region of India. The objective of the present study is to study the influence of methanolic and aqueous extracts of *Apium graveolens*.L on diabetic, cataract and anti-oxidant in alloxan induced diabetic rats.

Materials and Methods:

The effect of extracts of *Apium graveolens*.L on anti-diabetic pioglitazone was evaluated by using experimental model like alloxan induced diabetes (80 mg/kg, s.c.). In this model albino rats were divided into 9 groups each group with 6 animals 1st and 2nd groups served as normal and diabetic control. 3rd group received Glibenclamide (10mg/kg) 4th, 5th and 6th group received treatment (100, 250 and 500mg/kg of methanolic extract of *Apium graveolens*.L) 7th, 8th and 9th group received treatment (100, 250 and 500mg/kg of aqueous extract of *Apium graveolens*.L) Serum glucose, cholesterol, HDL cholesterol, triglycerides, SGOT, SGPT, total protein, albumin, urea ceatinine levels were estimated by commercial kits (Swemed diagnostics) other parameters like food intake, fluid intake, body weight, liver glycogen, were estimated and compared with alloxan induced diabetic rats.

The same animals were used for the study of anti-oxidant parameters after 21 days of treatment and the following parameters were carried in Kidney and liver. glutathione peroxidase (SOD), glutathione reductase, catalase, thiobarbituric acid reactive substance (TBRAS) and ascorbic acid.

Evaluation of anti-cataract activity was carried by using Alloxan monohydrate model to induce cataract in a batch of Wistar albino Rats by injecting subcutaneous dose

(20 mg/kg body weight/24 h for six days) of 2% alloxan monohydrate solution in saline, the animal is tested for following parameters after particular group treatment. Ophthalmic examination after homotropinization. Concentration of DNA, RNA and total protein in blood, aqueous humor and lens. Ascorbic acid, Gluthathione reductase, Superoxide dismutase and Catalase.

Results:

The phytochemical screening of the stem bark of *Apium graveolens* revealed the presence of carbohydrates, glycosides, flavonoids, phenols, fixed oil and proteins.

Current study gives evidence that treatment with methanolic and aqueous extract of *Apium graveolens* has favorable effect not only on blood glucose levels, liver glycogen but also on serum lipids and body weight. This point out the promising effect of *Apium graveolens* seed being a useful anti-diabetic agent and also in diabetic complications.

Our results also show that *Apium graveolens* prevented the increase in lipid peroxides and prevented the decrease in both enzymatic and non-enzymatic antioxidants in alloxan-induced diabetic rats. This effect might be due to the presence of flavonoids and ascorbic acid which is useful in generation of GSH in lens and other tissue which is the main biochemical constituent help in removal of free radical and prevent the formation of cataract. Probably antidiabetogenic effect of the extract of *Apium graveolens* was also due to its antioxidant activity since one of the proposed mechanism of diabetic effect of alloxan through generation of free radicals.

Key words: *Apium graveolens*.L, alloxan, diabetes, cataract, serum glucose.