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# Antidiabetic Potential of Petroleum Ether Extracts of *Berberis Aristata* Bark in Alloxan Induced Diabetic Rats

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## ABSTRACT

The present study was designed to investigate the antidiabetic potential of petroleum ether extracts of *Berberis aristata* bark, in alloxan induced diabetic male wister albino rats (150–250g), Diabetes was confirmed after 5 days of single intraperitoneally injection of alloxan (140 mg/kg of body wt.) in 12 hours previously fasted rats. Petroleum ether extract of *Berberis aristata* (PEBA) (100 & 400 mg/kg, body wt.) and the standard drug glibenclamide (10 mg/kg, body wt.) were given orally in 0.5% tween 80 after 5 days of alloxan treatment daily for 20 days, except the normal and diabetic control group (n=6). Blood was collected from the retro-orbital sinus of the rats for glucose level determination on 1st, 5th, 10th and 20th days. PEBA (100 & 400 mg/kg, body wt.) showed significant reduction in blood glucose level, that comparable to glibenclamide showed significant reduction in blood glucose level. It is concluded that PEBA (400 mg/kg) possess better antidiabetic potential in alloxan induced diabetic rats.

## INTRODUCTION

Diabetes mellitus is the most common pancreatic islet disorder caused by an inability to produce insulin or a defect in its utilization. The hallmark of diabetes mellitus is polyuria-excessive urine production, polydipsia (excessive thirst) and polyphagia (excessive eating) and further development metabolic and anatomic disturbances, among which the lipemia, hypercholesterolemia, loss of weight, ketosis, arteriosclerosis, gangrene, pathologic changes in the eye, neuropathy, renal disease and coma are more common [1]. The frequency is expected to continue to grow by 6% per annum, potentially reaching a total of 200-300 million cases in 2010 [2]. According to estimates, the numbers of persons with diabetes in India will be rise from 31.7 million to 79.4 million by 2030 [3]. In few years there has been an exponential growth in the field of herbal medicine and these drugs gaining popularity both in developing and developed countries because of their natural origin and less side effects [4].

The plant of *Berberis aristata* has been reported to possess antimicrobial, hepatoprotective, anti-diabetic (against Type-2 diabetic mellitus), anti-carcinogenic activity, antidepressant activities due to its main alkaloids that are berberine, berbamine, oxyberberine, oxyacanthin, aromoline etc. Traditionally plant is used in all types of inflammations, dysentery, uterine and vaginal disorders, in diarrhea, jaundice, high blood pressure. It is also used as a diaphoretic, laxative and to treat skin diseases, infections of the eyes, as a bitter tonic and a cholagogue. Also it is used as an antipyretic, antiseptic, anti ulcer and in the treatment of hemorrhoids and leprosy [5].

## MATERIAL AND METHODS

### Collection and Authentication of the Plant

The bark of *Berberis aristata* was collected from the local surrounding area of Meerut (India), in the month of September-October 2011 and authenticated at B.I.T School of Pharmacy, Partapur by-pass Meerut.

### Preparation of the bark extract

The bark of *Berberis aristata* was collected and dried at room temperature and coarsely powdered. The dried powder was defatted and subjected to extraction by petroleum ether in a Soxhlet apparatus. The extract was distilled and concentrated under reduced pressure until all solvent has been removed to give an extract sample and dried it completely.

### Chemical and reagents

Alloxan, Glibenclamide (Abbortt health care Pvt. Ltd, India), Glucose, Estimation kit (Span diagnostic, India) were used. Other chemicals and reagents used for the study were of analytical grade.

### Experimental animals

Male Albino Wistar rats (150-250gm) were obtained from the approved animal house of B.I.T School of Pharmacy, Meerut,