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To Study Antidiabetic Activity of Stem Bark of *Bauhinia purpurea* Linn

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Bauhinia purpurea Linn commonly known as Purple Orchid-Tree and is cultivated throughout India. Literature survey revealed that the bark of *Bauhinia purpurea* Linn is traditionally used as an astringent in diarrhoea. Flowers are laxative. The bark, root and flower mixed with rice water are used as a maturant for boils and abscesses[2]. the present study was undertaken to evaluate the antidiabetic activity of Petroleum ether, Chloroform ,Ethyl Acetate, Acetone ,Methanol and Hydro alcoholic extract of stem bark of *Bauhinia purpurea* extracts was evaluated using mice i.e. alloxan induced diabetes in mice by glucometer method, with 50 mg/kg ,100 mg/kg and 200 mg/kg and higher doses showed significant value represent at table no and Figure 1,2,3 respectivelly with different succissive extract and show the Significant P Value[4,5].

Keyword: *Bauhinia purpurea* Linn, Antidiabetic Activity, Alloxan, Mice

1. Introduction

Bauhinia purpurea Linn commonly known as Purple Orchid-Tree and is cultivated throughout India. Literature survey revealed that the bark of *Bauhinia purpurea* is traditionally used as an astringent in diarrhoea. Flowers are laxative. The bark, root and flower mixed with rice water are used as a maturant for boils and abscesses[2]. thorough investigation would be carried out on this stem bark of *Bauhinia purpurea* Linn Hence the present study was undertaken to evaluate the antidiabetic activity of stem bark of *Bauhinia purpurea* due to presence of polyphenolic compound present during phytochemical analysis[4,5].

2. Material and method

2.1 Plant Material

The stem bark of plant *Bauhinia purpurea* Linn[1]. Were collected locally, from Bharatnagar opposite L.I.T Nagpur. It was authenticated by Prof. (Mrs.) Alka Chaturvedi, Department of Botany, Nagpur University, and Nagpur. Its herbarium is deposited in the above department. (Voucher specimen no.9132) The stem bark of *Bauhinia purpurea* was dried in shade under normal environmental condition and subjected to size reduction with the help of laboratory grinder. Such powdered drug was charged into Soxhlet apparatus and extraction was carried out with Petroleum ether, Chloroform, Ethyl Acetate, Acetone, Methanol and Hydro alcoholic extract respectively.

2.2 Animals

Swiss albino mice (25-30 g) of either sex were used. They were subjected to water and diet (ad libitum Gulmohar rat feed, supplied by Hindustan lever, Hyderabad.) and kept-in house with control temperature with a ratio of 12h: 12h light: dark cycle[10].

2.3 Preparation of Extract

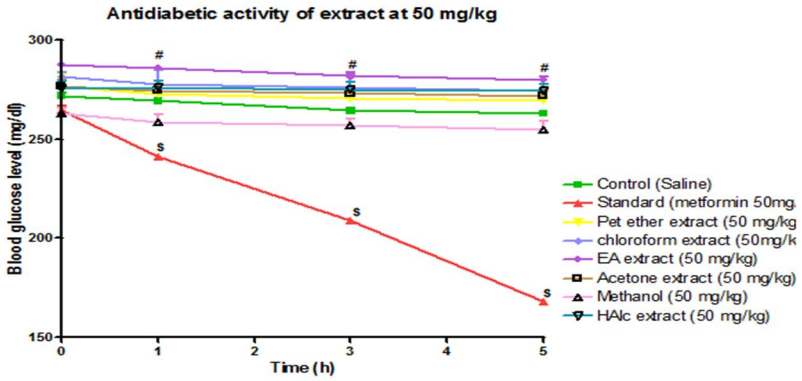
For Petroleum ether, Chloroform, Ethyl Acetate, Acetone, Methanol and Hydro alcoholic extract 500 gm of fresh stem bark powdered was subjected to soxhlet extraction for about 48 hr respectively and the extract was filtered and concentrated in vaccum under reduced pressure and dried in desiccator.

2.4 Experiment Method

Glucometer method- Swiss albino mice (25-30 g) of either sex were divided into six group each containing four animals[10]. Diabetes was induced in 12 h fasted mice by intraperitoneal injection of 12 mg/kg body weight of alloxan, freshly dissolved in sterile normal saline immediately before use to give a conc. of 30g/l .The diabetic state was assessed by measuring blood glucose level with the help of glucometer in alloxan treatment. The mice with a blood glucose level above 200 mg/dl were selected for the experiment. and blood glucose level at the regular interval like 0 hrs,1 hrs,3 hrs and 5 hrs[4,5,6].

2.5 Stastical Analysis

All result are expressed as mean ± SEM .the data was analysed with the help of Two-way ANOVA followed by Bonferroni test[12].



*P < 0.05, #P < 0.01, $P < 0.001 when compared with control.
(Mean ± SEM, n = 4) (Two-way ANOVA followed by Bonferroni test)
Fig 1: Antidiabetic activity of extract at 50 mg/kg

Table 1: Blood Glucose Level Estimation by Glucometer (50mg/kg)

Treatment	0 hr	1 hr	3 hr	5 hr
Control (saline)	271.75±1.652	269.25±0.8529	264.25± 0.8539	262.75 ± 0.4784
Standard (metformin 50mg/kg)	264.75 ±1.931	241.25±1.315	208.75±1.315	167.75±0.7500
Pet. Ether extract (50mg/kg)	276.5±6.589	272.5±5.204	270.75±4.608	269.5±4.664
Chloroform (50mg/kg)	281.5± 2.363	277.5 ±7.039	275.75 ±6.799	274.5 ±6.982
Ethyl acetate (50mg/kg)	287.5 ± 1.555	286.25 ±1.109	281.75 ±1.974	279.75 ±1.652
Acetone (50mg/kg)	276.5 ± 3.524	274.5 ±2.398	273 ±2.121	271.75 ±2.955
Methanol (50mg/kg)	263 ± 2.723	258.5 ±3.775	256.75 ±3.750	254.75 ±4.385
Hydro-alcoholic (50mg/kg)	275.5 ±3.663	275.75 ±3.660	275 ±3.536	274.5 ±2.958

Table 2: Blood Glucose Level Estimation by Glucometer (100mg/kg)

Treatment	0 hr	1 hr	3 hr	5 hr
Control (saline)	271.75 ±1.652	269.25 ±0.8529	264.25 ± 0.8539	262.75 ± 0.4784
Standard (Metformin 50mg/kg)	264.75 ±1.931	241.2 ±1.315	208.75 ±1.315	167.75 ± 0.7500
Pet. Ether extract (100mg/kg)	269.75±2.323	262.75 ±.4787	259 ±.7071	256.5 ±1.1.190
Chloroform (100mg/kg)	265.75± 2.658	263 ±1.472	258 ±1.427	255.5 ±1.658
Ethyl acetate (100mg/kg)	266.5 ± 1.190	263 ±0.4082	258 ±0.4082	255.5 ±0.6455
Acetone (100mg/kg)	270 ± 2.972	263.5 ±0.6455	258.5 ±0.6455	255.75 ±0.2500
Methanol (100mg/kg)	271.25 ±2.327	253±1.080	239.75±0.4787	226.75±0.8660
Hydro-alcoholic (100mg/kg)	277.75 ±3.065	263.25 ±0.6292	259.75 ±0.9465	256.75 ±1.377

Table 3: Blood Glucose Level Estimation by Glucometer (200mg/kg)

Treatment	0 hr	1 hr	3 hr	5 hr
Control (saline)	271.75 ±1.652	269.25 ± 0.8529	264.25 ± 0.8539	262.75 ± 0.4784
Standard (metformin 50mg/kg)	264.75 ±1.931	241.25 ±1.315	208.75 ±1.315	167.75 ± 0.7500
Pet. Ether extract (200mg/kg)	269±2.550	261.75 ±0.6292	257.75 ±.1.109	255.75±1.377
Chloroform (200mg/kg)	264.25± 2.323	262 ±1.871	258.5 ±1.658	254.75 ±1.797
Ethyl acetate (200mg/kg)	265.5 ± 1.041	262 ±0.4082	258.75 ±0.4787	255 ±1.080
Acetone (200mg/kg)	271.25 ±2.926	262±0.9129	258.5±0.500	254.5 ±1.323
Methanol (200mg/kg)	275.25 ±2.062	250.50 ±1.258	226.75 ±1.109	203.75±0.8539
Hydro-alcoholic (200mg/kg)	270.25 ±3.119	262 ±0.7071	258.75 ±1.436	256.5 ±1.555

3. Results and Discussion

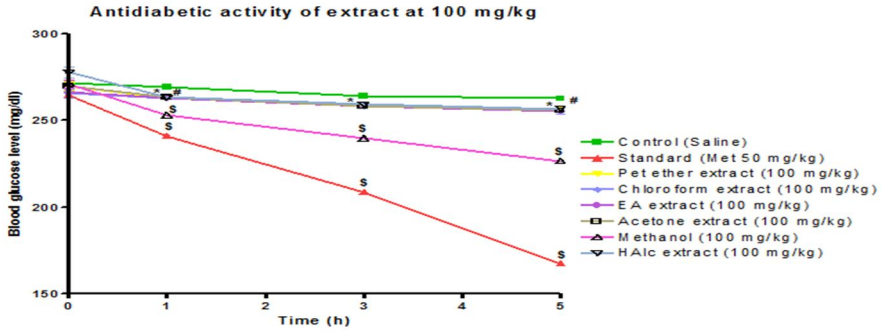
The work performed during the study includes successive extraction of the stem bark of plant with solvents of increasing polarity using Soxhlet apparatus, preliminary phytochemical screening of all extracts and its evaluation of antidiabetic activity.

Successive extraction of dried powder of stem bark was carried out with solvents of increasing polarity viz. petroleum ether (40–60°c), chloroform, ethyl acetate, acetone and methanol and macerated with hydro-alcoholic solvent to obtain respective extracts. Preliminary phytochemical screening of extracts was carried out to reveal the presence of different primary and secondary metabolites. Petroleum ether, chloroform and ethyl acetate extracts revealed the presence of steroids. Acetone, methanol and

hydro-alcoholic extracts showed the presence of flavonoids, carbohydrates, saponins, tannins, and amino acid[11].

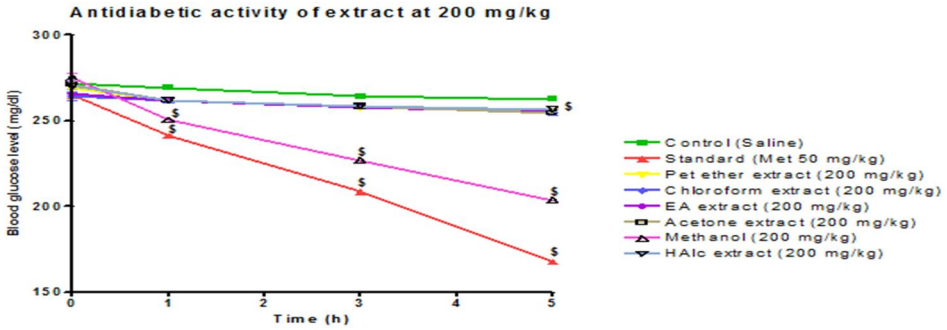
The antidiabetic activity of petroleum ether (40–60°c), chloroform, ethyl acetate, acetone, methanol and hydro-alcoholic extracts was evaluated using mice i.e. alloxan induced diabetes in mice by glucometer method, with 50 mg/kg dose activity was not show significant activity so higher dose with (100 mg/kg and 200 mg/kg) were selected for study it was found significant activity and in higher doses showed significant value, Amongst these extracts methanolic extract was potent antidiabetic activity[4,5,6].

According to some researchers polyphenolic compounds (flavonoids) in the plants are responsible for antidiabetic activity and these are the possible mechanism of flavonoid which significant reduction in blood glucose levels[8].



*P < 0.05, #P < 0.01, $P < 0.001 when compared with control
(Mean ± SEM, n = 4) (Two-way ANOVA followed by Bonferroni test)

Fig 2: Antidiabetic activity of extract at 100 mg/kg



*P < 0.05, #P < 0.01, $P < 0.001 when compared with control.
(Mean ± SEM, n = 4) (Two-way ANOVA followed by Bonferroni test

Fig 3: Antidiabetic activity of extract at 200 mg/kg

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