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**CARDIAC FUNCTION PROFILING AND ITS ANTIDIABETIC  
EFFECT OF *DAPHNE MUCRONATA* IN ALLOXAN INDUCED  
DIABETIC RABBITS**

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**Abstract**

Diabetes mellitus is a chronic hyperglycemia associated with elevated plasma cholesterol. Natural and traditional herbal remedies are a source of new commercial products. Anti-diabetic potential of *D. mucronata* extracts (methanol) has been assessed in alloxan monohydrate diabetic induced rabbits. The extracts were given orally by 8 hours. The dose rate was 12 mg, 125mg, 225 mg and 325mg/kg body weight respectively. At every 2 hours blood sample was collected, serum separated and glucose level was determined by kit method. The result suggests that the treatment of 325 mg/kg body weight significantly ( $p < 0.05$ ) decreased blood glucose and cholesterol level at 143 mg/dl and 166.33 mg/dl in the experimental group. Therefore, it is concluded that the *D. mucronata* possess significant anti-diabetic activity.

**Keywords:** Diabetic mellitus, *D. mucronata* alloxan monohydrate, glucose

## **Introduction**

Diabetes mellitus is one of the most commonplace persistent health troubles in the international. as presently available antidiabetic medicinal drugs have barriers in terms of safety, efficacy, and fee, it's miles an important studies location to investigate medicinal plant life for brand new antidiabetic compounds that could result in powerful, secure and less steeply-priced pharmacotherapy (Belayneh et al., 2019. *Daphne mucronata* royle is a plant belongs to the own family thymelaeaceae. leaves of this plant are toxic .the plant possess insect repulsive abscesses for sore. the glue from leaves is used for muscular and nerve problems. plant poultice is carried out for rheumatism and sweeping. The roots and shoots of d. *Mucronata* royle are anthelmintic. these are utilized in treatment of gonorrhea. end result are used for ingesting purposes, to deal with eye troubles, to remedy skin. these are considered as treatment for face freckles, ticks, for killing lice and also are worried in coloring leather-based .timber is used as firewood and utilized in practice of gun powder charcoal (Ashraf et al.,2018).the existing take a look at become executed to evaluate the antidiabetic and antidyslipidemic sports of methanolic extract of *Daphne mucronata* royle in experimental rabbits.

## **Materials and methods**

### **Selection of the plant:**

*D. mucronata* is present throughout the mountainous areas of Khyber Pakhtunkhwa.

### **Collection of Plant:**

*D. mucronata* was collected from Village Golain District Chitral. The plant extract was prepared in methanol solvent.

### **Selection of Animals for the experiment:**

The animal group Rabbits (*Oryctolagus cuniculus*) were selected for the conduction of this experiment upon them. 20 numbers of rabbits were purchased by the local supplier. Rabbits were divided in to five groups after induction of diabetes with Alloxan monohydrate beside the normal group.

## Administration of Extract

Group A was kept as untreated group.i.e control group.

Group B was treated with glucophage at the dose rate of 12 mg/kg body weight.

Group C was treated with plant extract of *D. mucronata* at dosage of 125 mg / kg body weight.

Group D was treated with *D. mucronata* extract at dosage 225 mg/ kg body weight.

Group E was treated with *D. mucronata* extract at dosage 325 mg/ kg body weight.

## Blood Sample Collection

From the marginal veins at the back of ear, blood was obtained in Zero hours, Two hours, four hours, six hours and eight hours simultaneously and was analyzed through Double Beam UV Spectrophotometer.

## Results

Group B was given Glucophage (Glibenclamide) for regular 8 hours at the interim of zero hrs, 2 hrs, 4hrs, 6 hrs and 8 hrs. At the last of the process of treatment, the glucose and cholesterol level of Group B was recorded as 185 mg/dl and 167 mg/dl respectively.

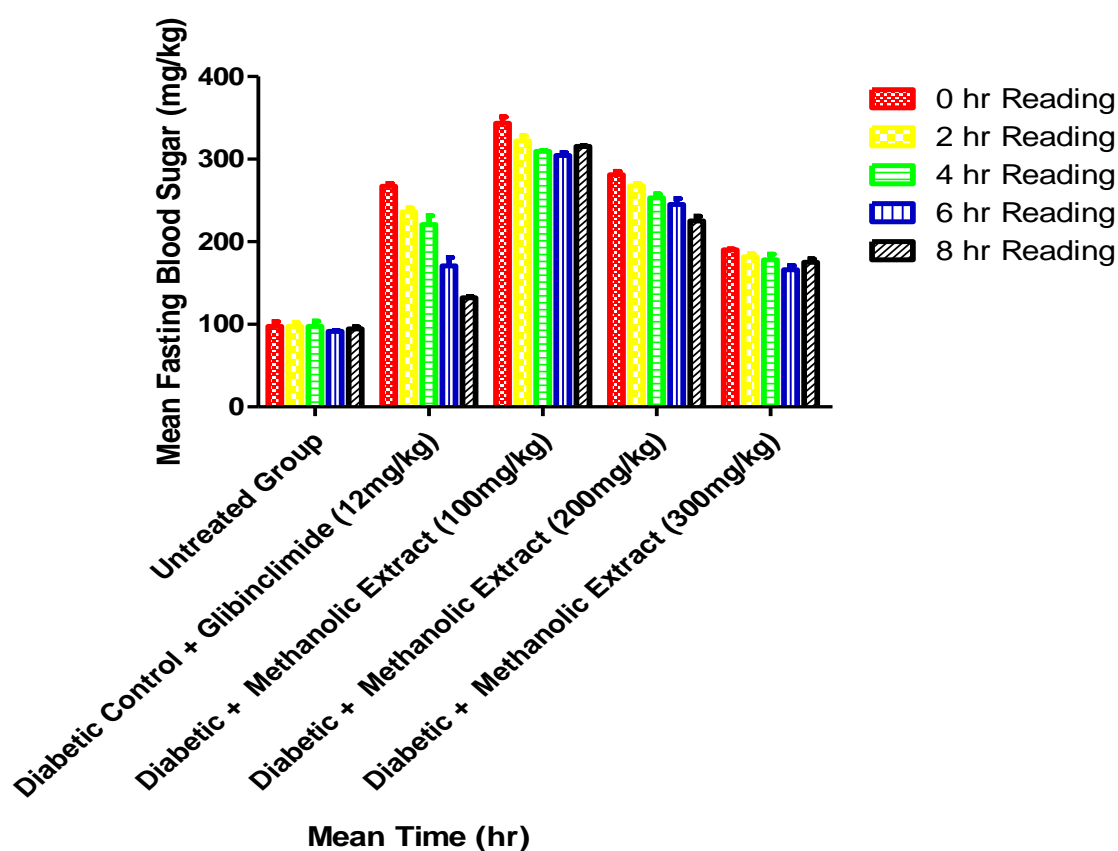
Group C was kept on *Daphne mucronata* plant's extract at dosage of 125 mg/dl for continuous 8 hrs at the interim of zero hrs, 2hrs, 4hrs, 6hrs and 8 hrs. At the last of the process of treatment, the glucose and cholesterol level of Group C was recorded as 315 mg/dl and 266 mg/dl respectively.

Group D was treated with plant extract of *Daphne mucronata* at dosage of 225 mg/kg for continuous 8 hrs at the interim of zero hrs, 2 hrs, 4hrs, 6 hrs and 8 hrs. At the last of the process of treatment, the glucose level and cholesterol of Group D was recorded as 233 mg/dl and 258.66 mg/dl respectively.

Group E was treated with plant extract at the dose rate of 325 mg/kg for regular 8 hrs. It was given at the interval of zero hrs, 2 hrs, 4 hrs, 6 hrs and 8 hrs. At the last of the process of treatment, the glucose and cholesterol level of Group E was recorded as 143 mg/dl and 166.33 mg/dl respectively.

**Table 1: Blood glucose level (mg/kg) in alloxan induced diabetic rabbits.**

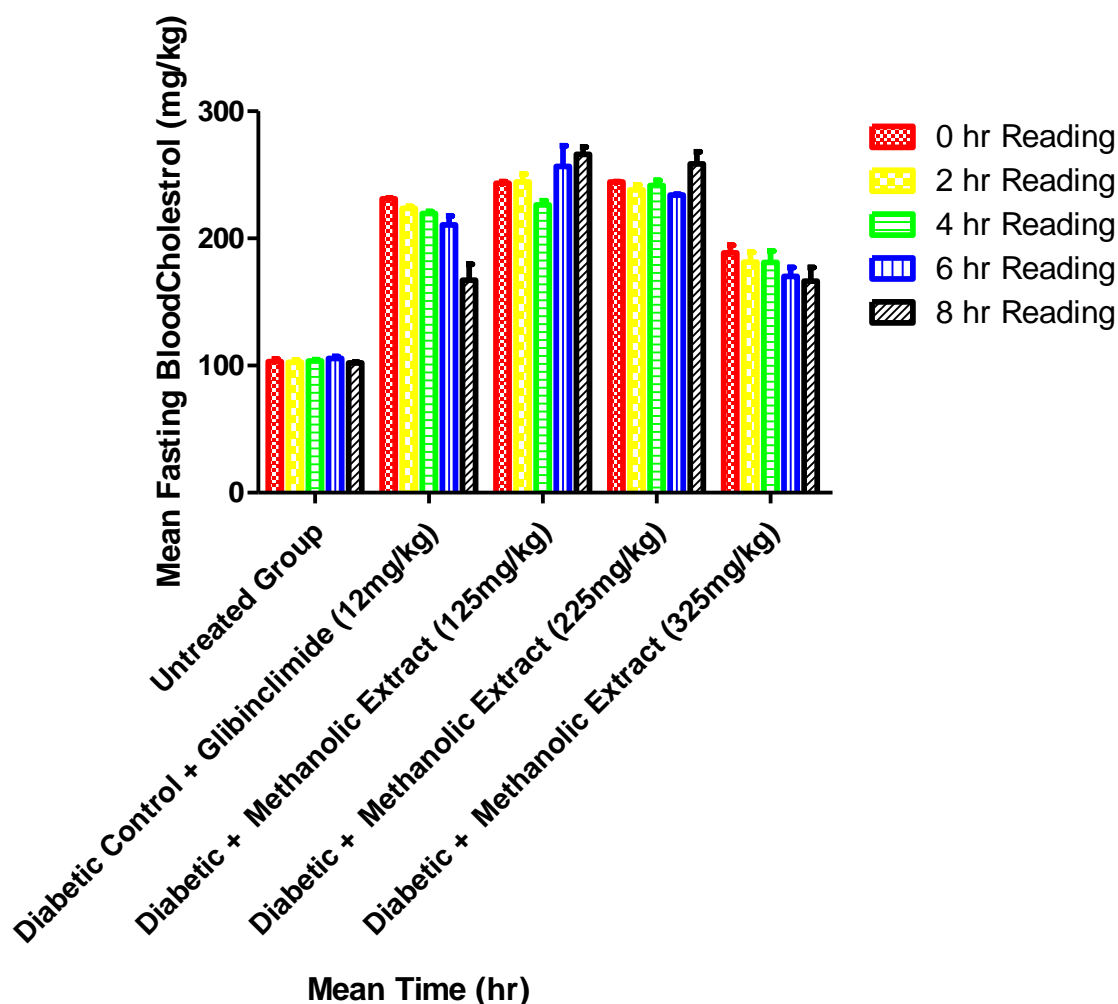
	<b>0 hr Reading</b>	<b>2 hr Reading</b>	<b>4 hr Reading</b>	<b>6 hr Reading</b>	<b>8 hr Reading</b>
<b>Untreated Group</b>	89.66	96.33	95.33	92	95
<b>Diabetic Control + Glibenclimide (12 mg/kg)</b>	288	288.33	265	207.33	185.66
<b>Diabetic + Methanolic Extract (125 mg/kg)</b>	378	342.66	312.66	305.33	315
<b>Diabetic + Methanolic Extract (225mg/kg)</b>	303.33	292	266.66	255	233.33
<b>Diabetic + Methanolic Extract (325 mg/kg)</b>	198.66	190.33	181	179.66	143



**Figure-1. Blood glucose level of Rabbits**

**Table 2: Blood cholesterol level (mg/kg) in alloxan induced diabetic rabbits.**

	<b>0 hr Reading</b>	<b>2 hr Reading</b>	<b>4 hr Reading</b>	<b>6 hr Reading</b>	<b>8 hr Reading</b>
<b>Untreated Group</b>	103	102.66	103.66	105.66	102
<b>Diabetic Control + Glibenclimide (12 mg/kg)</b>	231	223.66	219.66	210.66	167
<b>Diabetic + Methanolic Extract (125 mg/kg)</b>	243.33	244.33	226.33	256.66	266
<b>Diabetic + Methanolic Extract (225mg/kg)</b>	244.33	238	241.66	234	258.66
<b>Diabetic + Methanolic Extract (325 mg/kg)</b>	188.66	181.33	181	170	166.33



**Figure-2. Blood cholesterol level of Rabbits**

## DISCUSSION

Alloxan monohydrate induces diabetes mellitus in rabbits. In the process pancreas destroys and rabbits to have high glucose level in their blood, due to serum insulin level reduction. The present work reflects that there are some recreations of beta cells of pancreas which produce insulin. After three days of the application of the extract recipe. This generation rate reached to its high level and starting produce insulin apart from that the cholesterol level also have significant reduction in the Alloxan treated rabbits. There is also a phenomenon observed in these rabbits. There mobilization and high concentration of lipid serum level observed due to the freely mobilization of fatty acid from the peripheral fat source of secretion, maintenance of serum cholesterol level indicates in the extract that phytoestrogens and sapiens may exert their role in maintenance. The diabetes mellitus causes renal functions disturbance, resulting the urea high in concentration. This urea level also became down due to the treatment with the extract the rabbits. Side by side the main antioxidant uric acid in the blood is also reduces due to this disorder. The extract enhances antioxidant effect and normalizes the uric acid level. In the infected groups due to the occurrence of processes in different kinds as proteolysis, lipolysis and fluid loss causing the weight loss occur in the diabetic subjects. In such situations the extract works positively beneficial. The weight gained and body metabolism starts correctly after the extract's application. So, all the information and experiments reflected that this plant has significant and outstanding anti-diabetic and anti cholesterolomic activities.

The brought about of the seed extracts and watery extraction of plant named botanically as *Phyllanthus amarus* at verbal dosage of 150, 300 and 600 mg/kg b. wt. had inspected for its ant-diabetic and anti-lipidemic potentials. The dig up formed a dosage dependent lessen the serum cholesterol level, plasma glucose level and diminution in their weights of fasting treated mice. The domino effect conjure up that the extort might possibly be improving glucose peripheral operation of but the procedure on in what way this facility keep on indistinct (Adeneye et al., 2006)

## CONCLUSION

Going to the conclusion, this experiment shows that the plant *D. mucronata* extracts retain significant anti-hypoglycemic and that of anti-hypocholesterolemic activities.

It also has the property of antioxidant for oxidative strain generated by diabetes mellitus. In major of the suggestions the concerned optional plant may possess high qualitative affections when it collected from the hilly areas rather than that of plain areas for such kind of treatment purposes.

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