

## Pharmacological Evaluation of Ayurvedic Preparation for their Antidiabetic Property

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### Abstract

Adult albino rats (150-250 gms) injected with alloxan (15mg/kg i.p.) were divided into four groups of six each. One group served as control, second group treated with Pramehaoushadhi Chooranam (1 gm/kg), third group treated with Nishakathakathadhi Chooranam (1gm/kg) and fourth group was treated with Glibenclamide. All the animals were fasted for 18 hours before administering the drugs. Blood glucose level was estimated at intervals of 1<sup>st</sup>, 2<sup>nd</sup>, 4<sup>th</sup>, 8<sup>th</sup> and 12<sup>th</sup> hours. At the end of the study, Nishakathakathadhi Chooranam showed more efficacious response against alloxan-induced diabetes mellitus when compared to Pramehaoushadhi Chooranam.

**Keywords:** Antidiabetic, Ayurvedic preparation, Nishakathakathadhi Chooranam (NKKC), Pramehaoushadhi Chooranam (PRAM).

### Introduction

Diabetes<sup>1</sup> is a disorder of biochemical reactions that are necessary for proper utilization of carbohydrates, fats and proteins from the diet along with inadequate or lack of insulin. Insulin is a hormone produced in the pancreas to regulate the amount of blood sugar in the body. Currently there are 5 types of medical treatment prevalent in the country. They are treating diabetes with Allopathic, Ayurvedic, Homoeopathic, Naturopathic and Unani drugs. Besides these drugs, more importance is now given to Yoga and exercise in a regular nature coupled with a dietary regimen. In this dissertation, Ayurvedic preparations such as choornas were employed for the antidiabetic study. Nowadays, Ayurveda is becoming more popular because it has proven more efficacious in the therapy of diabetes. In order to substantiate the evidence of fact, and to counteract the adverse effects of Allopathic drugs, Ayurvedic preparations were selected for the study.

### Materials and Methods<sup>3,4,5</sup>

Twenty four healthy albino rats were selected and weighed. They are of either sex. They are divided into four groups. Each group comprising of 6 rats were kept in separate cages. All rats were subjected to 18 hours of fasting. Only water was given to them during the 18 hours of fasting.

First group rats served as the control, that is, those group were given water only, second group of rats were given pramahoushadhi Chooranam in the dose of 1 gm/Kg body weight. Third group of rats were given Nishakathakathadhi Chooranam (NKKC) in the dose of 1gm/Kg body weight.

Fourth group of rats is given Glibenclamide in the dose of 0.36mg/Kg body weight which serves as the standard. Blood glucose level of the rats were tested at intervals of 1<sup>st</sup>, 2<sup>nd</sup>, 4<sup>th</sup>, 8<sup>th</sup>, 12<sup>th</sup> hours. The rats in the Group II were given Pramehaoushadhi Chooranam (PRAM) is compared with Group IV, that is, glibenclamide standard with view to assess and ascertain the levels of glucose in the blood of rats.

A similar comparative study was also made in the case of rats in Group III, which were given Nishakathakathadhi Chooranam with those of Group IV, which were administered by the standard drug.

### Discussion

The rats in the first group were fully diabetic after induced with alloxan and being fed normally with food; the percentage of glucose level in their blood was 500mg/dl.

The second group of rats, after being induced diabetic with alloxan, feeding normally, had blood glucose level of 470.17mg/dl which was lower than the initial blood glucose level at 241.17mg/dl when they were given the Ayurvedic formulation drug Pramahoushadhi Chooranam. It indicates that Pramahoushadhi Chooranam is favourable in reducing the blood glucose level by 229mg/dl.

In the case of the third group of rats, the result proved to more efficient. They were given the Ayurvedic formulation drug Nishakathakathadhi Chooranam after induction of diabetes and feeding. Their initial blood glucose level was 524.5mg/dl and is reduced to 161.17mg/dl which is almost

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Table-1

**Determination of blood glucose level in normal fasting rats before and after drug treatment**

Groups	Drugs	Dose	Fasting blood sugar level before drug administration (mg/100ml) (mean±S.E.M)	Blood sugar level 2 hrs after drug administration (mg/100ml) (mean±S.E.M)	Reduction in Blood sugar level (mg/100ml)
I	Solvent	1gm/kg	68.6 ± 2.26	68.4 ± 2.32	0.2
II	PRAM	1gm/kg	65.2 ± 0.65	64.0 ± 0.82*	1.2
III	NKCC	1gm/kg	65.2 ± 1.04	63.8 ± 0.50**	1.4
IV	Glibenclamide	0.36mg/kg	63.6 ± 1.23	63.2 ± 0.70	0.4

n=5 ANOVA, \*\*P < 0.01, \*P < 0.1

PRAM Pramehaoushadhi NKCC - Nishakathakathadhi Choornam

Table-2

**The Hypoglycemic Activity of Pramehaoushadhi, Nishakathakathadhi Choornam and Glibenclamide in Alloxan Induced Diabetic Rats**

Groups	Drugs	Dose	Normal al rats mg/dl	After drug treatment (mg/dl) in hours (mean ± S.E.M)				
				1st	2nd	4th	8th	12th
I	Alloxan + water	1 gm/kg	75 ± 0.36	478.67 ± 0.21	486.33 ± 0.21	500.67 ± 0.33	499.17 ± 0.31	498.83 ± 0.31
II	PRAM	1 gm/kg	74 ± 0.26	470.17 ± 0.48	359.17 ± 0.48	249 ± 0.37	241.17 ± 0.37*	246.83 ± 1
III	NKCC	1 gm/kg	74.5 ± 0.43	524.5 ± 0.98	472.67 ± 0.98	238.17 ± 0.60	161.17 ± 0.61**	293.17 ± 0.71
IV	Glibenclamide	0.36mg/kg	74 ± 0.437	468.17 ± 0.31	458.17 ± 0.48	283.5 ± 0.56	304.5 ± 0.92	354 ± 1.15

n=5, ANOVA TEST, \*\*P < 0.01, \*P < 0.1

PRAM – Pramehaoushadhi NKCC - Nishakathakathadhi Choornam

the normal blood glucose level. It points out that Nishakathakathadhi Chooram is more efficacious than Pramehoushadhi Chooram in treating diabetes.

Finally, the IV Group of rats were examined by giving the standard drug Glibenclamide after inducing diabetes with Alloxan and feeding with normal food as in the cases of the rats in the II and III groups. The blood glucose level in the IV

group rats were 283.5mg/dl after giving Glibenclamide. It showed an increase by 42.33 mg/dl from that of the Nishakathakathadhi level.

It is proved that the Ayurvedic drug Nishakathakathadhi Chooram is more efficacious than the other Ayurvedic drug Pramehoushadhi and standard drug Glibenclamide in the therapeutic treatment of diabetes.

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