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RESEARCH ARTICLE

Study of Antidiabetic Activity of Cow Urine and Its Concentrate

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ABSTRACT:

In the present study, cow urine and its concentrate (left after distillation) were subjected to investigations for verifying and establishing their antidiabetic activity. Alloxan- induced diabetic rats were used as experimental animals. Their blood glucose level was determined using Glucose Oxidase–Peroxidase (GOD-POD) method. The results were compared with the results obtained in standard Glibenclamide treated rats. The comparison endorses the recommended utility of cow urine in ancient *Ayurvedic* texts. It also justifies the use of available marketed formulations containing cow urine in treating diabetic patients.

KEYWORDS: Cow urine, atidiabetic, alloxan, GOD-POD, glibenclamide, serum glucose

INTRODUCTION:

Ayurved- The Indian system of medicines has been using cow-urine for betterment of physical as well as mental health of mankind since thousands of years[1]. Ancient texts and literature recommend it for variety of conditions and ailments including gastric disorders, injuries, wounds, skin diseases, diabetes, etc[2]. It is considered to be a highly effective animal origin substance having intrinsic property of general health improvement. It is also known to be the most useful medicinal component of *Panchagavya*. (*Panchagavya* is a term used in *Ayurved* to describe five important substances obtained from cow namely urine, dung, milk, ghee and curds.) Numerous medicinal formulations containing one or more of these components along with other herbal, mineral or animal generated substances are available in the armor of *Ayurvedic* medicines[3]. Some antidiabetic preparations are also prescribed by *Ayurvedic* as well as modern day physicians. Present work attempts to verify and establish the utility of cow urine in the treatment of diabetes through laboratory experimentation using albino rats[4,5].

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MATERIAL AND METHODS:

1. Cow urine collection and distillation

Fresh cow urine was obtained form *Go-Vigyan Anusandhan Kendra*. (*Go-Vigyan Anusandhan Kendra* is a research center established at Deolapar, in Nagpur district. It maintains a well equipped *Gaushala* which has almost all types of Indian breed cows. The Kendra is fully dedicated towards the research activity and is also engaged in production of different medicinal formulations based on *Panchgavya*.) The urine was filtered through ordinary filter paper to remove all visible extraneous mater. Part of filtered urine was subjected to distillation to obtain residual concentrate (CUC).

2. Induction of diabetes and dosing of animals

a) Animals:

Healthy albino rats of either sex weighing 150-200g were used. The animals were housed in standard environmental conditions of temperature and humidity with a 12:12 light: dark cycle. Rats were fed with standard diet and tap water. All the animal experiments were performed following the due approval for study protocols by the Institutional Animal Ethics Committee (Reg. NO. 536/02/CPCSEA).

b) Induction of diabetes in experimental rats

Diabetes was induced in this group of rats of either sex by a single intraperotoneal injection of aqueous alloxan monohydrate (120mg/kg). After three days of injecting alloxan monohydrate animals with serum glucose level 150mg/dl were selected for evaluation of antidiabetic activity. All the control group animals were allowed free access to tap water and pellet diet and maintained at room temperature in plastic cages.

Table1. Effect of Cow urine, CUC and Glibenclamide on serum glucose level (mg/dl) in alloxan induced diabetic rats

Groups	0 Days	Day 7	Day 14	Day 21	Day 28
Group I –(Normal)	80.39±72	80.32±74	81.54±71	80.36±75	80.75±78
Group II–(Diabetic control)	283.00±0.38	279.65±0.20	296.00±0.21	303.00±0.34	289.00±0.19
Group III –(Standard)	262.00±0.26	173.20±0.27*	170.50±0.54**	169.00±0.42**	175.60±0.28*
Group IV –(CUC dosed)	243.76±0.32	189.60±0.31	179.60±0.19*	178.20±0.46**	178.05±0.26*
Group V–(Cow urine dosed)	262.40±0.20	172.40±0.25*	171.80±0.54**	170.40±0.33**	168.70±0.42*

All the values are expressed in ± standard error mean (n=6), **P<0.01 Vs Diabetic control Group.
The results show notable reduction in serum glucose level in animals kept on dosing with CUC and cow urine as also, of course, with glibenclamide.

The animals were divided into five groups each comprising of six rats.
Group-I -Normal (administered orally plain distilled water)

Group-II------Diabetic control (Alloxan induced diabetic rats)

Group-III-Standard (administered appropriate dose of standard Glibenclamide solution)

Group-IV-Test I (administered orally 2ml suspension of CUC).

Group-V-Test II (administered orally 2ml neat cow urine).

Each of the above groups was daily administered its respective dose between 9 and 10 am for a period of four weeks. Cow urine was mixed with water due to resistance shown by animals to swallow it neat.

3. Collection of blood and determination of serum glucose:

Blood samples from all the groups of rats were collected by retro-orbital puncture technique. Serum glucose level was determined by GOD-POD method. The GOD-POD kit was obtained from Siddham Diagnostics, Nagpur. The blood samples were withdrawn on 0^{th}, 7th, 14^{th}, 21^{st} and 28^{th} days.

RESULTS AND DISCUSSION:

Serum glucose levels of experimental animals were determined on 0^{th}, 7th, 14^{th}, 21^{st} and 28^{th} days. The observations are recorded in the Table 1.

CONCLUSION:

Cow urine and its concentrate show reasonably significant antidiabetic activity which is comparable with the conventional modern antidiabetic agents in regular use. Considering their other advantages, they present a potential case for conversion into suitable formulation. Some such formulations are already available and are prescribed by Ayurvedic physicians. The results of the present work lend an experimental support and justify their use. The antidaiabetic activity is attributable, perhaps, to some medicinal moieties whose presence in cow urine is established through other parallel studies involving chemical and instrumental analysis.

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REFERENCES:

1) Shah E. Herbal compositions. US Patent 5 693 327. 1997, Dec 2.
2) Khanuja SPS. Pharmaceutical composition containing cow urine distillate and an antibiotic. US Patent 6410059. 2002
3) Khandelwal,K R. Eds. In:Practical Pharmacognosy, Nirali Publication,2000; p. 9.
4) Girish S. Achliya. Evaluation of sedative and anticonvulsant activities of Unmadnashak Ghrita
5) Gururaja MP. Attenuation of carbon tetrachloride-induced Hepatotoxicity by cow urine distillate in rats