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Biochemical examination of Deoni cow urine

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Abstract

Urine of cow is elaborately used in ancient Ayurvedic scriptures such as Charaka samhita, Shushruta samhita, and Brahad-Wagbhatt. A number of diseases can be cured by use of medicines derived from the cow. Thus, the current research work was aimed to study the biochemical constituents of Deoni cow urine. The Deoni cows were divided into two groups, each group containing six cows. The physical and chemical examination of cow urine was done.

The result shows the cow urine contain all essential biochemical constituents within normal range.

Keywords: Ayurvedic scriptures, elaborately, examination, urine

Introduction

The Deoni breed of cattle also sometimes known as Dongari (which means "of the hills"), has been evolved within the last 200 years. It is claimed that it has been developed from a strain descended from the mixture of Gir, Dangi and local cattle. A contribution from the Gir type of cattle is quite evident in the formation of the head and ears, and also of the horns to a certain extent. They also show a great similarity in general conformation and ruggedness to the Dangi cattle, an area which is not far from the Deoni cattle breeding area ^[1].

From the ancient period in India, cow urine has been used for several medicinal purposes and the description on its use has been in several classical Ayurveda texts like Charaka samhita and Shushruta samhita ^[2]. Cow is equated to mother in the Indian tradition and her urine panacea of all diseases. Cow urine is a divine medicine and is used for treatment of diabetes, blood pressure, asthma, psoriasis, eczema, heart attack, blockage in arteries, fits, cancer, AIDS, piles, prostrate, arthritis, migraine, thyroid, ulcer, acidity, constipation, gynaecological problems, It is also used as bio-enhancer, increase the nitrogen content of the soil, for better rearing of honey bees, hasten the pubertal age of the heifers exposed to bull's urine and as pesticide and larvicide for the fodder crops. Cow urine contains all substances, which are naturally present in the human body. Thus, consumption of cow urine maintains the balance of these substances and this helps cure incurable diseases.

It is natural, eco-friendly with no residual effects, economical and easily available. The cow urine not only used against ailments of diseases as therapeutic agents but also have several other uses as in agriculture and sericulture sectors. So, this article attempts to bring forth the diversified use of cow urine which was mostly used in ancient Indian system of medicine ^[3].

Materials and methods

The present study was conducted in the Department of Veterinary Pharmacology and Toxicology, College of Veterinary and Animal Sciences, Udgir, Dist. Latur, Maharashtra.

Collection of urine

The urine samples were collected from pregnant (3-6 months) and non-pregnant group of Deoni cows reared under standard managerial practices at ILFC (Instructional Livestock Farm Complex), COVAS, Udgir. Natural voiding early morning mid-stream urine was collected in sterile glass container.

The collected urine samples of pregnant (1 - 6) and non-pregnant group of Deoni (7-12) cows were filtered through four-fold muslin cloth and then subjected to examination of urine.

Examination of urine for physical and chemical characteristics

Physical examination of urine

The physical examination of urine viz. colour, transparency, odour, foam etc was carried out as per method described by Brar *et al.*, (2000) ^[4] and apparently normal samples were taken for chemical examination.

a) Colour

The urine samples were examined under naked eye appearance for color of urine viz. Pale, colorless, red, brown, dark yellow, light yellow etc.

b) Transparency

The urine samples were examined for transparency of urine under naked eye appearance as clear, flocculent and cloudy.

c) Odour

The urine samples were examined for odour of urine as ammoniac, sweetish, fruity and foul odour.

d) Foam Test

The urine samples were shaken vigorously to see whether there is production of white foam or not. The appearance of white foam indicates test is positive.

Chemical examination of urine by reagent strip

The qualitative test was performed using the strip test method (URISCAN, YD Diagnostics) by briefly dipping a reagent strips into fresh urine then noting the colour changes on the reagent pads at the appropriate time and visually compared to the colour chart provided by manufacturer. The parameters like pH, specific gravity, urobilinogen, bilirubin, ketone, blood, protein, nitrite, leukocytes and glucose were observed on a reagent strip.

After Urinalysis, apparently normal samples of pregnant (3-6 months) and non-pregnant Deoni cow's urine were used for the research study. A total 12 Deoni cows were selected from ILFC, College of Veterinary and Animal Sciences, Udgir. Out of these 12 cows, six cows were pregnant (1-6), while the rest six cows (7-12) were non-pregnant.

Procedure

Urine should be tested at room temperature. If the urine specimen has been refrigerated, it should be brought to room temperature before testing. The procedure for using the dipstick is as follows:

1. Test areas of the strip was completely dipped the in fresh, well mixed, uncentrifuged urine and removed immediately.
2. Excess urine was removed from the stick by touching the edge of the strip to the urine container.
3. The test areas were compared with the corresponding colour charts on the container and recordings were noted.

Results and discussion

Physical examination of urine

Urine of pregnant and non-pregnant group of Deoni cows was analysed. Urinalysis variables are described in table 1. The colour of cow's urine was found pale yellow to light amber in both groups, which could be due to presence of urochromes ^[5]. The urine of both groups of Deoni cows were smelled aromatic, while the transparency of the urine was clear in respect of both group of cows. After conducting the foam test, revealed that urine from both pregnant and non-pregnant cows' forms froth, which could be due to presence of saponins.

The variation in the colour of the urine samples may be due to the amount and type of fodder consumed and the protein content in them ^[6], while the odour was aromatic which could be due to certain metabolic products ^[7].

Table 1: Physical examination of urine of pregnant and non-pregnant Deoni cows

Group	Sample no.	Colour	Odour	Transparency	Foam Test
Pregnant Deoni cows	1	Pale yellow	Aromatic	Clear	Positive
	2	Light amber	Aromatic	Clear	Positive
	3	Light amber	Aromatic	Clear	Positive
	4	Light amber	Aromatic	Clear	Positive
	5	Pale yellow	Aromatic	Clear	Positive
	6	Light amber	Aromatic	Clear	Positive
Non-Pregnant Deoni cows	7	Pale yellow	Aromatic	Clear	Positive
	8	Light amber	Aromatic	Clear	Positive
	9	Pale yellow	Aromatic	Clear	Positive
	10	Pale yellow	Aromatic	Clear	Positive
	11	Pale yellow	Aromatic	Clear	Positive
	12	Pale yellow	Aromatic	Clear	Positive

Chemical examination of urine

Table 2 depicts the presence of various biochemicals in urine of pregnant and non-pregnant group of Deoni cows. The chemical examination of pregnant and non-pregnant cow urine revealed that there was absence of protein, nitrate, glucose and blood. However, Bilirubin (<0.5 mg/100ml), Urobilinogen (0.3-3 mg/100ml), Ketones (4-5 mg/100ml),

WBC (< 25WBC/ μ l) was found in the urine of both group of cows. The specific gravity of urine of pregnant cows ranged from 1.005 to 1.303, whereas specific gravity of urine of non-pregnant cows ranged from 1.020 to 1.025. The pH of urine of pregnant and non-pregnant cows ranged from 7 to 8. These observations are in accordance with the findings of Parrah *et al.*, 2013.

Table 2: Chemical examination of urine of pregnant and non-pregnant Deoni cows

Parameters											
Group	Sr. No	Bilirubin (mg/100ml)	Urobilinogen (mg/100ml)	Ketones (mg/100ml)	Protein (g/L)	Nitrate	Glucose (mmol/L)	WBC (WBC/ μ l)	RBC (RBC/ μ l)	Specific gravity	pH
Pregnant Deoni cows	1	<0.5	0.3	5	-ve	-ve	-ve	< 25	-ve	1.303	8
	2	<0.5	0.3	5	-ve	-ve	-ve	< 25	-ve	1.303	7
	3	<0.5	2	5	-ve	-ve	-ve	< 25	-ve	1.303	8
	4	<0.5	0.3	4	-ve	-ve	-ve	< 25	-ve	1.010	8
	5	<0.5	2	4	-ve	-ve	-ve	< 25	-ve	1.303	8
	6	<0.5	2	5	-ve	-ve	-ve	< 25	-ve	1.005	7
Non-Pregnant Deoni cows	7	<0.5	3	5	-ve	-ve	-ve	< 25	-ve	1.020	8
	8	<0.5	3	4	-ve	-ve	-ve	< 25	-ve	1.020	8
	9	<0.5	3	5	-ve	-ve	-ve	< 25	-ve	1.025	8
	10	<0.5	0.5	5	-ve	-ve	-ve	< 25	-ve	1.025	7
	11	<0.5	2	5	-ve	-ve	-ve	< 25	-ve	1.020	8
	12	<0.5	2	5	-ve	-ve	-ve	< 25	-ve	1.025	7

-ve indicates absent

Conclusion

According to Ayurveda cow urine has been used to improve general health of an individual and having therapeutic values because it is used in number of drugs to treat disease. Research study concluded that cow urine contains biochemical parameters which possesses medicinal properties. Further research is needed to develop proper drug containing cow urine.

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