Review Article
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Immunomodulatory properties of indigenous cow urine

Abstract

Cow urine has many beneficial properties particularly in the area of agriculture and therapeutics. It has also been observed in scientific research that the urine of Indian cows is highly effective as compare to the urine of other species. It is a good biopesticide and also effective against many diseases including cancer. It is a very potent immunoenhancer. In '*Sushruta Samhita*' and '*Ashtanga Sangraha*' cow urine has been described as the most effective substance/secretion of animal origin with innumerable therapeutic values. Urine of cow contains all the beneficial elements so it is natural and universal medicine that fulfills the deficiency of the elements in the body. Cow urine contains 24 types of salts and the medicines made from cow urine are capable of curing even the most incurable diseases. Cow urine contains 95% water, 2.5% urea, and 2.5% minerals, salts, hormones and enzymes. It contains iron, calcium, phosphorus, salts, carbonic acid, potash, nitrogen, ammonia, manganese, sulphor, phosphate, potassium, urea, uric acid, amino acids, enzymes, cytokines, lactose etc. Cytokines and amino acids may play a role in immunoenhancement. The indigenous cattle, scientifically called as *Bos indicus* or as *Zebu* cattle, mainly in habitat the Indian subcontinent. Presently, cow rearing is an important source of income and an enterprise which enables poor and landless farmers to earn income using common property resources and land. The cattle are fed on crop residues and farm produce by products that would otherwise be wasted, and as such there is no food competition with human beings.

Keywords: badri cow, immunomodulatory, mitogen, blastogenesis, chromosomal aberrations, lymphocytes, interleukin, avian lymphocytes, mitomycin-c, antioxidant, leucocytes

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R S Chauhan
Department of Veterinary Pathology, GBPUAT, India

Correspondence: RS Chauhan, Department of Veterinary Pathology, GBPUAT Pantnagar-263145, Uttarakhand, India, Email profchawhan58@gmail.com

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Introduction

Outside the India, there is no research work reported in literature as far as the cow pathy or medicinal properties of cow urine are concerned. However, there is a US patent issued to inventors Khanuja and his associates vide no. 6410059 dated 25.6.2002 on a pharmaceutical composition comprising of an antibiotic and cow urine distillate in an amount effective to enhance antimicrobial effect of antibiotics. In India, the ancient literature including Ayurveda has description on *Panchgavya* therapy that includes cow urine, milk, curd, ghee and dung. The *Panchgavya* therapy though an age old system of medicine is not given due importance in modern science. However, there are scanty reports of therapeutic use of cow urine or other *Panchgavya* materials to cure human and animal ailments. Immunomodulatory properties of cow urine distillate in mice recorded an increase in humoral and cellular immunity of 45% and 59%, respectively.[1–4] The parameters used to assess immunity were B-lymphocyte blastogenesis, T-lymphocyte blastogenesis, serum IgG and IgM levels. The cow urine also stimulated the production of interleukin 1 and 2 by 16% and 21%, respectively, from peripheral blood leucocytes of mice. The phagocytic activity of macrophages was enhanced by 104% in mice treated with cow urine in comparison to controls. Lymphocytes proliferation in response to mitogen in the developing chick embryo increased with the use of cow urine. This means that immune system developed at an early stage and embryonic mortality can be decreased with the use of cow urine. Urine of red hill cow, found in Uttarakhand state and characterized as *Badri* cow has been found to be most potent immunostimulator. It was observed that urine of cross bred, exotic cow and a buffalo has no immunomodulatory effect. Cow urine given to the poultry birds in water as an alternative to antibiotics demonstrated excellent immunomodulatory properties in addition to the increase in the egg production and egg quality of the layer birds. In another important study effect of cow urine on the lymphocytes damaged by pesticides was observed. It was found that cow urine decreases the apoptosis caused by the heavy metals in avian lymphocytes. Thus, corroborating to some extent with the findings that cow urine help in repair of broken DNA. The antioxidant properties of cow urine distillate include protection or DNA and its repairs. The cow urine distillate protected the chromosomal aberrations caused by mitomycin-C in human leukocyte culture. Similarly, cow urine was found to be a very good antioxidant. Cow urine has a high antioxidant status as indicated by its ability to destroy the free radicals.

Conclusion

Harmful effects of pesticides and their prevention through cow urine

The presence of pesticide residues has been detected in various items including food and feeds. Similarly, heavy metals such as lead, mercury and cadmium, which are common contaminants of pesticides and/or fertilizers, may get entry into the food chain. The levels of pesticides and heavy metals in food items are found to be at much higher levels than expected, because of heavy contamination of the environment. Experiments were planned to study the effect of cow urine on B- and T-lymphocytes treated with pesticides and the results were quite encouraging (Table 1) (Table 2). Cow urine protected the cells upto 55% from the deleterious effects of pesticides. Cow urine has immense potential of being used as an immunomodulator particularly along with antibiotics and/or vaccines in order to enhance their activity (Figure 1).

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Table 1 Effect of cow urine on B-lymphocytes treated with pesticides

Pesticides	B-lymphocytes (%)	Treated with cow urine (%)	Protection due to cow urine (%)
Cypermethrin	56	16	40
Allethrin	92	60	32
Captan	87	45	42
Dimethoate	73	18	55
Methyl parathion	87	54	33
Forate	81	58	23
Mancozeb	60	29	31
Propoxur	76	65	11
Thriam	61	39	22
Zineb	83	68	15

Table 2 Effect of cow urine on T-lymphocytes treated with cow urine

Pesticides	T-lymphocytes(%)	Treated with cow urine (%)	Protection due to cow urine (%)
Cypermethrin	56	47	9
Allethrin	92	57	35
Captan	87	51	36
Dimethoate	87	20	67
Methyl parathion	68	55	13
Forate	82	67	15
Mancozeb	55	36	14
Propoxur	71	68	3
Thriam	67	35	32
Zineb	87	71	16

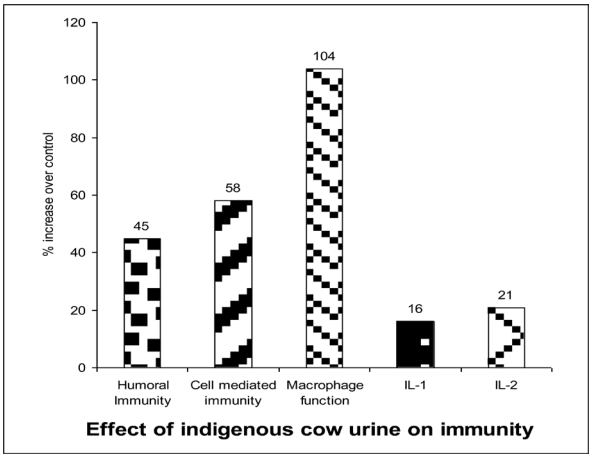

Figure 1 Effect of indigenous urine on immunity

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None.

Conflicts of interest

The author declares that there are no conflicts of interest.

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