COW URINE AND IMMUNOMODULATION: AN UPDATE ON COWPATHY

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ABSTRACT

Indigenous cattle or zebu cattle is considered as sacred in Indian literature because its products like urine, dung, milk, curd and butter has many wonderful medicinal properties. Among these products cow urine has recently caught the attention of the researchers and a lot of work is going on its medicinal properties. Cow urine is found to have bioenhancing properties, i.e. it adds to the effect of antibiotics when used in combination. It is can be used as an alternative to the antibiotics in feed additives. Cow urine has antioxidant properties; it can prevent the damage to DNA caused by the environmental stress. It has been found to be a very good immunoenhancer. And interestingly these properties have been found only in the urine of indigenous cow not in the urine of other species like buffalo, goat or even in cross bred cows. This review will provide an update on the various researches conducted in different institutes on the immunoenhancing properties cow urine.

Keywords: Cowpathy, cow urine, zebu cattle, immunoenhancement, antioxidant.

Cowpathy

Panchgavya chikitsa is an age old system of medicine described in ancient Indian literature ‘Ayurveda’ and now it is known as ‘cowpathy’ means the therapy of human ailments through cow products. In Ayurvedic system, the medicines are prepared either from plants or from animals besides the use of certain metals (Chauhan. 2001a). The Ayurvedic medicines of animal origin are mainly prepared from indigenous cow products such as urine, dung, milk, curd and ghee (Chauhan, 2001b&c). Medicinal use of cow urine has been in practice since time immemorial in India. The Panchgavya principle of Ayurveda consists of cow urine besides other products like milk, ghee, butter milk (matha), dung as its main ingredients (Chauhan and Singh, 2001). The preliminary studies on immunomodulation with cow urine generated interest among the scientists. The cow urine distillate (Kamdhenu Ark) was found to increase immunity in mice. It also increases the phagocytic activity of macrophages and secretion of interleukin 1 and 2 (Chauhan, 2001a&b). Recently, the cow urine has also been granted US patent for its synergistic properties with antibiotics and as bioenhancer. It provided the base for further research and detailed studies on immunomodulatory properties of indigenous cow urine and its comparison with the urine of cross bred and exotic cows, buffaloes and goat using modern biotechnological tools (Chauhan, 2004; Chauhan, 2001a,b&c). As per an estimate by WHO, by the year 2020, the antibiotics will no more be wonder drugs. Then in such situation, cowpathy will play a major role in prevention and control of infections in man and animal. It is an established fact that most of the antibiotic drugs have lost their capacity by way of increased resistance in bacteria.

Zebu cattle

The indigenous cattle, scientifically called as Bos indicus or as Zebu cattle, mainly inhabitat the Indian subcontinent. It is thought to be world’s oldest domesticated cattle. Historically also it is now proved by the fact that humped cattle remains were found in Mohanjodaro site of Indus Valley indicating their presence in India even before the arrival of Aryans. 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.
Importance of cow urine

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 compared to the urine of other species. It is a good biopesticide and also effective against many diseased including cancer. It is a very potent immunoenhancer. In ‘Sushrita Samhita’ and Ashtanga Sangraha cow urine has been described as the most effective substance/secretion of animal origin with innumerable therapeutic values (Dhama et al., 2005). 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. (Bhadauria, 2002). Cytokines and amino acids many play a role in immunoenhancement.

Most of the medicines are made by distilling urine and collecting vapors known as ark or distillate. A number of ailments could be treated and his is being used even for the most threatening diseases like cancer, AIDS, diabetes and skin problems. Cow urine is also antibacterial, antifungal, antiviral, antineoplastic, anticonvulsant, antispasmodic and still non-toxic. It is also beneficial in conditions like flu, sinus, allergy, cold, ear infection, rheumatoid arthritis, aging, bacterial/viral infection, snake bites, chemical intoxication, chicken pox, enteritis, constipation, edema, baldness, hepatitis, leprosy, hypertension, burns, tuberculosis, asthma, tetanus, Parkinson disease, small pox, obesity, gastric ulcers, depression, heart diseases, morning sickness, fever, eczema fatigue etc. It is also used as diuretic, laxative and for treatment of chronic malaria, headache and fever. It is a proven universal cure for the blood disorders, leucorrhoea and even leprosy. The urine of cow is bitter, pungent, piquant, spicy, warm, and full of all the five elixirs. In India drinking of cow urine is in practice since thousands of years and now it has also been demonstrated experimentally that it is one of the best natural medicines in the universe (Dhama et al., 2005).

Cow urine as immunoenhancer

Outside the India, there is no research work reported in literature as far as the cowpathy or medicinal properties of cow urine are concerned. However, there is a US patent issued to inventors Khanuja et al. vide on. 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, Charak Samhita, Susrut Samhita etc. have description on Panchgavya therapy that includes cow urine, milk 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. Chauhan et al. (2001a&b) reported immunomodulatory properties of cow urine distillate in mice. They recorded an increase in humoral and cellular immunity of 45% and 59%, respectively, in mice treated with cow urine. The parameters they 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 27% in mice treated with cow urine in comparison to controls (Fig. 1). Panchgavya is considered as a wonder formulation which requires scientific validation using modern biotechnological tools in order to increase its acceptance in the society (Chauhan, 2001b&c). The cow urine distillate was also found to be a good immunostimulant in comparison to Vasant Kusmakar in mice (Kumar et al., 2002). The cow urine was given orally to a female patient having intestinal cancer for a period of 4 months, and it provided relief to the patient by reducing the motions, hemorrhage and increased activity of the patient (Singh et al., 2002). Distilled cow urine has been found to increase the humoral immunity in rats (Garg and Chauhan, 2003). Kumar et al. (2004) reported that 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 (Banga et al.,
has been found to be most potent immunostimulator as compared with the urine from other animals including indigenous cow (Sahiwal), goats, buffalo (Murah), cross bred cow (Sahiwal x Red Sindhi) and exotic cows (HF). It was observed that urine of cross bred, exotic cow and buffalo has no immunomodulatory effect (Banga, 2005). Cow urine given to the poultry birds in water as an alternative to antibiotics demonstrated excellent immuno-modulatory properties in addition to the increase in the egg production and egg quality of the layer birds (Garg, 2004; Garg et al., 2004). 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 (Ambani, 2004). Thus, corroborating to some extent with the findings that cow urine help in repair of broken DNA (Dutta, 2001). Dutta (2001) found the antioxidant properties of cow urine distillate which also protects DNA and repairs it rapidly. 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 (Julk, 2003). If we look into the fact of apoptosis, it starts with fragmentation of nucleic acid (DNA) into oligonucleotides of 200-300 bp. Several studies carried out by the authors and others at Pantnagar, NEERI Nagpur, CIMAP Lucknow, AIIMS New Delhi are suggestive of its properties to repair damaged DNA and thereby protecting cells from suicidal activity enhanced due to pesticides/any other harmful chemical residues.

Future prospects

Cow urine has immense potential of being used as an immunomodulator particularly along with antibiotics and/or vaccines in order to enhance their activity. However, its palatability in crude form as it is being prepared and marketed by several organizations, is not much accepted in the society. Therefore, the efforts are being made to prepare the dry form of cow urine without loosing its activity but changing the delivery system and in this direction the scientists of JD Lab at CDDL, IVRI have got success and their preliminary research has shown encouraging results, which will be further strengthened and hopefully within a year some good results will come out. In future, it can be given as a ‘biovaccine’ to protect animals from various diseases.

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