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VERSATILE USES OF INDIAN COW URINE: A REVIEW

Amit Manohar Belekar^{1*}, Prashant Sanjeevrao Salian¹, Abhijeet P. Shirguppe¹ and Sachin Vasantrao Patil²

¹KDCA's Institute of Pharmacy, Ujalaiwadi, Kolhapur, Maharashtra, India, 416112.

²Shree Santkrupa College of Pharmacy, Ghogaon, Tal: Karad, Dist.: Satara, Maharashtra, India, 415111.

***Corresponding Author: Amit Manohar Belekar**

KDCA's Institute of Pharmacy, Ujalaiwadi, Kolhapur, Maharashtra, India, 416112.

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ABSTRACT

Indian cow, *Bos indicus* is a most valuable animal in Indian culture. *Sushruta Samhita* and *Astanga Sangraha* states cow's urine is one of the most effective substance of animal origin with innumerable therapeutic values. It has been recognized as water of life or Amrita. Cow's urine is one of the most important substance out of five substances in *Panchgavya* (cowtherapy). A huge research is going on to determine and prove therapeutic efficiency of cow urine therapy. Cow's urine has a versatile therapeutic uses. It is used as antiseptic, disinfectant, antimicrobial, antifungal, anthelmintic, analgesic and anti-obesity agent. Besides that it is used in treatment of various disease like hemorrhoids, diabetes and cancer. Most important property of cow urine is, it promotes and augments the bioactivity or bioavailability or the uptake of various drugs enhancing their efficacy and potency and reducing their dose and duration of treatment. Thus cow urine can be used efficiently in combination with other medicines in various therapies too. However there is need of further research so that with cow urine wide range of diseases can be managed. It will prove to be eco-friendly, economical and easily available remedy for various dangerous diseases in future.

KEYWORDS: Indian cow, cow urine, *Panchgavya*.

INTRODUCTION

As per *Charaka-Samhita*, all the living creatures on the earth are made up of the five elements of nature viz. Earth, Water, Fire, Air and Space which are all together called as *Panchabhootas*. Their health is affected by *Tridoshas*, viz. *Vadha* (air), *Pitha* (fire) and *Kapha* (Phlegm). Any disturbance in the harmony of natural ratio of the five elements may cause the disease.^[1] Indian cow, *Bos indicus* is a most valuable animal in Indian culture. Cowpathy (*Sanskrit: Panchagavya*) is a treatment based on the five products obtained from cows viz milk, ghee, curd, dung and urine, used in *Ayurvedic* medicine. These remedies seem to be beneficial for diseases like cancer, acquired immunodeficiency deficiency syndrome (AIDS) and diabetes. Immunostimulatory, immunomodulatory and anti-inflammatory activity of *Panchagavya* is already being mentioned in *Ayurveda*.^[1,2]

Ancient literature in *Ayurveda* '*Sushruta Samhita*' and '*Astanga Sangraha*' states that cow's urine (*Gomutra*) is one of the most effective substance of animal origin with innumerable therapeutic values. It has been recognized as water of life or "*Amrita*" (beverage of immortality). It is not only used for human health but also for animal health and plant growth. Different *Ayurvedic* literatures have mentioned the properties and uses of *Gomutra* for

treatment of various diseases like blood pressure, blockage in arteries, arthritis, diabetes, heart attack, cancer, thyroid, asthma, psoriasis, eczema, prostate, fits, AIDS, piles, migraine, ulcer, acidity, constipation, gynecological problems and several other diseases.^[2,3]

Properties of Cow Urine

According to *Sushruta Samhita* cow urine is *Katu Rasa* (pungent), *Laghu* (easily digestible), *Tikshna* (penetrating), *Ushanavirya* (hot in potency), *Agnidipaka* (kindles digestion), *Medhya* (improves intellect). Because of *Kshar Guna* (alkaline property) it increases *Pitta*, decreases *Kapha* and *Vata*. According to *Charaka Samhita* cow urine is *Madhur rasa* (sweet), somewhat alleviates *dosas* (*Sushruta Samhita*, 2012). According to *Astanga Samgraha sutra sthan* 6/141-143 *Gomutra* is *Katu rasa* and *Lavanaanurasa*. *Rukshaguna*, *ushnavirya*, It increases *Pitta*. It is best among all other animal urine (*Astanga Samgraha*, 2011).^[4]

Composition of Cow Urine

Cow urine contents are water 95%, urea 2.5%, minerals, salt, hormones and enzymes 2.5%. It contains sodium, nitrogen, sulphur, iron, calcium, phosphorus, potassium, urea, uric acid, amino acids, enzymes, cytokine, lactose and Vitamins etc.^[3,4] Cow urine contains all of these substances with having a balanced proximate

composition. Therefore, consumption of cow urine restores the balance of these substances in body and thus helps in curing from incurable diseases.^[4]

Traditional Uses of Cow Urine

Traditionally cow urine is believed to have therapeutic value and used in many *ayurvedic* drug formulations. Mainly it is used as disinfectant and for purification and having shelf life of around 5 years. It is the most effective natural antiseptic and disinfectant as compared with the synthetic chemicals. In the rural villages in India, it is being used since a very long time as an effective antiseptic for wounds, skin diseases, bathing, etc. Ancient Indian Vedic Scriptures including Manu Smriti, Charaka Samhita and *Sushruta Samhita* and present researcher quoted that rational use of cow's urine eliminates any non-functionality of respiratory systems, hepato-gastro-intestinal systems, cardiovascular systems, cancer and many others.^[5]

Antimicrobial activity of cow urine

Shah *et al.* studied in vitro antibacterial potential of cow urine against various pathogenic bacteria using agar well diffusion technique and using Streptomycin as standard. The results showed good antibacterial activity of cow urine against most of the test bacterial strains. It also showed that antibacterial activity of fresh cow urine is more than phot-activataed urine. These results are expected due to the presence of certain volatile and non volatile components present in urine and acidic pH of photo activated urine.^[6]

Tyagi *et al.* evaluated antibacterial activity of photoactivated cow urine on various bactrial cultures and compaired this effect with antimicrobial activity of tetracycline. The photoactivated cow urine and tetracycline showed different zone of inihibitions in mm against six pathogenic microorganisms. It was observed that cow urine has effective antibacterial action against a broad spectrum of Gram +ve and gram -ve bacteria.^[7]

In another study it was found that sterile (fresh) urine and photo activated urine were most effective against all the different test organisms under study. Effectiveness of Fresh cow urine was observed to be nil against *Asperigillus fumigates*, *Candida albicans*, *Proteus vulgaris* and *Staphylococcus aureus*. Cow Urine Distillate (CUD) exhibited maximum growth suppression in *Asperigillus fumigatus*, followed by *Candida albicans*. Amongst all the different cow urine samples, highest antimicrobial activity was observed against *Salmonella typhi*, followed by *Bacillus subtilis*. This study reveals that antimicrobial properties of Fresh Cow Urine were very low, but after photo-activation, it proved to be very effective in controlling the proliferation of the microorganisms. This increased action may be due to the hydrolytic state of cow urine and the presence of amino acids in urinary peptides, by increasing the bacterial cell surface hydrophobicity. Further increase in the antimicrobial activity of cow urine may be due to the

formation of reactive compounds like formaldehyde, sulffinol, ketones, and amines during long term storage, heating and photo activation.^[8]

Prashith Kekuda *et al.* observed antifungal and anthelmintic activity of Cow urine concentrate (CUC) along with antibacterial activity. In this study antibacterial activity was tested against Gram positive and Gram negative bacteria by disc diffusion method; antifungal activity was tested against species of *Aspergillus* by agar well diffusion method and anthelmintic activity was studied using adult Indian earthworm model. CUC showed inhibition of Gram positive bacteria, dose dependent inhibition of fungi and dose dependent mortality of worms. Anthelmintic activity of CUC was found to be more superior as compared to the standard drug Piperazine citrate.^[9]

Hoh *et al.* experimented effect of amphotericin B, Fluconazole and variconazole on four standard strains and 37 clinical isolates of *Candida* species by disk diffusion method and effect of cow's urine on same species and isolates by agar dilution method. Among various isolates it was found that 18.9% were resistant to voriconazole, 24.3% to amphotericin B and 35.1% to fluconazole. Statistically significant association was observed between susceptibility for voriconazole and that for cow's urine. *C. albicans*, *C. parapsilosis* and 75.7% of clinical isolates of *Candida* were susceptible to cow's urine. Thus it was revealed that cow's urine distillate has concentration dependent inhibitory effect on *Candida* species and is also effective on the isolates that are resistant to other antifungal agents. The antifungal property of cow's urine can be explained by the presence of non-volatile active constituents like phenolic acids. But the exact mechanism of action of cow's urine in inhibiting the growth of fungi is still not well known and needs to be explored.^[10]

Analgesic effect of Cow urine

In a study, cow urine and its distillate have been subjected to investigation for their analgesic properties using rat-tail immersion method and compared with activity of standard Diclofenac sodium solution. From the observations, it was inferred that both cow urine and its distillate do possess notable analgesic activity. The distillate, especially, exhibited significant activity after 90 minutes after the administration. Their analgesic activity is attributable to the steroidal moieties and some volatile fatty acids present in cow urine, established through other parallel studies involving chemical and instrumental analysis.^[11]

In treatment of hemorrhoids

Hemorrhoids (*Arsha*) are a common anorectal condition showing symptoms like enlargement and distal displacement of the anal mucosa. An inflammatory reaction and vascular hyperplasia may be present in Hemorrhoids. Talokar *et al* prepared *Gomutra ghana* by evaporating *Gomutra* and a randomized single blind

clinical trial of it was conducted in experimental groups of Department of Shalyatantra of Shree Ayurved College, Nagpur. A total of 30 uncomplicated symptomatically diagnosed cases of *Arsha* were studied during this research work. Treatment was given for 30 days. The improvement in the patients was assessed mainly on the basis of relief in the signs and symptoms of the disease. Results revealed that the oral supplementation with the Cow-urine prevents the time-consuming, painful and expensive complication of Hemorrhoids of Grade I & grade II. *Gomutra ghana* through its *Agnivardhaka* effect relieves the *Agnimandya* which is responsible for *arsha*. Cow-urine acts on the large intestine through its *Mala-bhedana* effect. This results into the smooth excretion of stool, thereby providing a greater relief to the patients of hemorrhoids.^[12]

In treatment of Cancer

Cancer is a class of diseases in which a group of cells display the traits of uncontrolled growth, invasion and its spread through metastasis to the distant body places. Cancer is mainly caused by abnormalities in the genetic material of the transformed cell.^[13]

Evaluation of cow urine therapy on cancer patients in 8 days camp at Mandsaur district was carried on various cancer patients who were reported across from different state of India. Patients suffering from throat cancer, breast cancer, cervix and uterine cancer, buccal cavity cancer, lung cancer, lymphoma, bone cancer and both throat and buccal cancer were included in the survey. The symptoms (pain, inflammation, burning sensation, difficulty in swallowing, irritation, etc.) of cancer patients were categorized into severe, moderate and mild categories, respectively. It was evaluated that patients who were receiving cow urine therapy since 2-3 months were most benefited. Hence, this traditional therapy may really a boon to cancer patients.^[14]

Anticancer potential of cow's urine was recently validated by the grant of U.S. Patent (No. 6896907). It was found that distilled cow urine protects DNA and repairs it rapidly also protects chromosomal aberrations in leukocytes. Cow urine helps the lymphocytes to survive and not to commit suicide (apoptosis). It was also reported that cow urine prevents pathogenic effect of free radicals on various tissues. It also made realize that the traditional practices from Indian systems of medicine have a strong scientific base.^[15]

Anti-obesity potential of cow urine

Sharma et al evaluated the anti-obesity potential of CUD and compare with fresh cow urine in Wistar rats in which obesity was induced by high fat diet. Rats were assessed for anti-obesity parameters like BMI, abdominal circumference, obesity index, atherogenic index, lipid profile analysis and histopathological evaluation after two months daily oral treatment. The treated groups with fresh cow urine and its distillate were found to reduce

BMI, abdominal circumference, obesity index, atherogenic index, total cholesterol, triglycerides, LDL-C and VLDL-C significantly while increased the levels of HDL-C as compared with control group. Histopathological evaluation showed reduction in the size of visceral white adipose tissue in treated groups as compared with control Group.^[16]

Bioenhancing property of cow's urine

Cow urine was found to promote and augment the bioactivity or bioavailability or the uptake of various drugs enhancing the efficacy and potency of the various drugs, and reducing their dose and duration of treatment. Thus cow urine can be used efficiently in combination with other medicines in various therapies.^[15]

An investigation was carried out to study the effect of extracts of *Taxus baccata* alone and in combination with indigenous CUD in mice. Carcinogenicity was induced by diethyl nitrosamine. In a single dose DEN challenged animals were given extracts alone and in combination with CUD, daily. Control group with no DEN and no treatment as well as negative control with only DEN were also studied. Effect on tumor, mortality and histopathology of liver and kidney after six months were observed. It has been observed that cancer can be produced in mice using DEN and treatment experiment were conducted accordingly *T. baccata* leaves and bark extracts alone and along with CUD showed good cytotoxicity, good recovery in clinic-pathological parameters of affected mice during the experimental period. Out of various combinations *T. baccata* aqueous and ethanolic extract of leaf with CUD was found most promising anticarcinogenic preparation. This preparation is having both the qualities of *Taxus baccata* and CUD and their synergistic or bioenhancer effects, combined together might be helpful in controlling the cancer leading to recovery.^[13]

An herbal preparation prepared by the traditional healers of Mandsaur using cow urine and *Gymnema sylvestre* R. Br. (*Asclepiadaceae*), *Momordica charantia* L (*Cucurbitaceae*), *Eugenia jambolana* Lam. (*Myrtaceae*), *Aegle marmelos* Correa (*Rutaceae*), *Cinnamomum tamala* Buch.-Ham. (*Lauraceae*), *Aloe barbadensis* Linn. (*Liliaceae*), and *Trigonella foenum-graecum* L. (*Leguminosae*) is being used in the treatment of diabetes. In order to scientifically appraise the claim, this preparation was studied for antidiabetic activity and also compared with the herbal preparation prepared using water. It was observed that the herbal preparations significantly ($P < 0.05$, $P < 0.01$) lowered the blood sugar level of hyperglycemic rats in a dose-dependent manner. Comparatively, the cow urine preparation showed better activity than did the preparation prepared using water.^[17]

In another study Cow urine extract of *Azadirachta indica* a traditional medicine, was evaluated for its antimicrobial activity against MDR Clinical isolates. The results indicated that Cow urine extract of *A. indica*

showed more antibacterial activity in comparison to its organic extract.^[18]

CONCLUSION

In India Cow is considered as *Go-mata* (mother) as various substances obtained from her are found to be useful in the treatment of various diseases as well as improving health of human being. In Ayurveda Cow and cow urine have an important place and its importance should be scientifically proved, so that entire world will accept the concept of Indian Ayurveda therapy along with importance of Indian cow. The ancient scriptures of *ayurveda* consider cow urine to be the elixir of life. This review deals with compiling the various research activities related to cow urine as a medicine. It has been reported that cow urine is capable of curing blood pressure, blockage in arteries, arthritis, diabetes, heart attack, cancer, thyroid, asthma, psoriasis, eczema, prostate, fits, AIDS, piles, migraine, ulcer, acidity, constipation, gynecological problems and several other diseases. It is also having antiseptic, disinfectant, antimicrobial, antifungal as well as anthelmintic properties. Along with that it is found to enhance potency of various drugs too. However there is need of further research so that with cow urine wide range of diseases can be managed. It will be eco-friendly, economical and easily available remedy for various dangerous diseases.

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