Available online on 15.08.2020 at <http://jddtonline.info>

Journal of Drug Delivery and Therapeutics

Open Access to Pharmaceutical and Medical Research

© 2011-18, publisher and licensee JDDT, This is an Open Access article which permits unrestricted non-commercial use, provided the original work is properly cited



Open Access

Review Article

Miraculous Benefits of Cow Urine: A Review

Sonali P. Mahajan*, Sarin A. Chavan, Sushilkumar A. Shinde, Mahesh B. Narkhede

Dr. Rajendra Gode College of Pharmacy, Malkapur – 443101 Dist. Buldhana (MS), India

ABSTRACT

Go-mutra therapy provides an especially rich and provocative research topic. The ancient scriptures of ayurveda consider cow urine to be the elixir of life. Cow urine is one of the five contents of *Panchagavya* which obtain from cow (urine, milk, ghee, curd and dung). Cow based treatment is called as *Panchagavya Chikitsa* (Cowpathy). 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 also 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 like cancer, AIDS, autoimmune disorders better benefits in case of antibiotic resistance infectious diseases.

Cow urine is excellent bioenhancer and recently Cow urine distillate has been granted U.S. patents. Further researches is required to prove its qualities and benefits. Various actions and researches on cow urine are summarized in this article. It is the most effective natural remedy and the safest method of treatment on nature based.

Keywords: Gomutra, Panchgavya, CUC, Vermicompost, Immunostimulant.

Article Info: Received 17 June 2020; Review Completed 28 July 2020; Accepted 06 August 2020; Available online 15 August 2020



Cite this article as:

Mahajan SP, Chavan SA, Shinde SA, Narkhede MB, Miraculous Benefits of Cow Urine: A Review, Journal of Drug Delivery and Therapeutics. 2020; 10(4-s):275-281 <http://dx.doi.org/10.22270/jddt.v10i4-s.4285>

*Address for Correspondence:

Sonali P. Mahajan, Dr. Rajendra Gode College of Pharmacy, Malkapur – 443101 Dist. Buldhana (MS), India

INTRODUCTION

'The cow' is an itinerant medicinal dispensary and cow urine is a panacea of all diseases¹. Cow being considered as a holy animal from ancient time in eastern philosophy²⁻³. Indian cow breeds are exceptional and diverse species, popularly recognized as "Kamdhenu" (One who can comprehensive all wishes of mankind) and "Gaumata, (Cow is called as mother). Cow urine (Sanskrit: Gomutra) has a special significance in Indian custom. Cow urine is said to have a divine cleansing consequence as well. Cow urine has been narrated as water of life or "Amrita" (beverages of immortality), the nectar of the God. "Panchagavya" is a mixture of cow urine, milk, dung, ghee and curd². The cow urine, one of the constituents of 'Panchagavya' is proficient of treating many curable as well as incurable diseases and has been used abundantly in ayurvedic preparations since time immemorial as quoted in prehistoric holy texts like Charaka Samhita, Sushruta Samhita, Vridhabhagabhatt, Atharva Veda, Bhavaprakash, Rajni Ghuntu, Amritasagar, etc⁵. In Charaka Samhita, Sushruta Samhita and Vangbhat, reported eight kinds of animal urines that can be used in medication and therapeutics. All these mutras (eight types of urine from

diverse animals) are sharp, hot, pungent, bitter with salty as a secondary taste, light and promotive of evacuation⁴.

Cow urine has many beneficial properties particularly in the areas of agriculture and therapeutics. It has also been observed during the scientific research that the urine of Indian cows is extremely effective. A lots of research has been conducted in Cow Urine Treatment and Research Center, Indore over the past few years and it has been stated that gomutra is capable of curing blood pressure, blockage in arteries, arthritis, diabetes, relieving Kaphaja and Vataja disorders, those caused by Krimi (worms), Meda (excessive adiposity), Visha (poisoning), Gulma (gaseous swelling of the abdomen), Arsha (piles), skin diseases including leprosy, psoriasis, eczema, Shophya (inflammation), Agnimandya (loss of appetite), pallor, heart disease, cancer, thyroid, asthma, prostrate, fits, AIDS, piles, migraine, ulcer, gynecological problems, ear and nose complications and several other diseases. Externally it has been used as lotion, ointments and bath, but, internally it has been used in preparation of oral medications and drinks^{4,6}. The cow urine not only used in contradiction of ailments of diseases as therapeutic agents but also have several other uses as in domestic chores,

hygiene, agriculture and sericulture sectors (fertilizer, insecticides, pesticides).

Cow urine distillate (CUD) is found to have immunomodulatory effect as it boosts both T-and B- cell proliferation and also surges the level of IgG⁷. Recently, the cow urine has also been granted U.S. patents (NO. 6896907 & 6410059) for its synergistic properties with antibiotics, antifungal, and anticancer drugs as bio-enhancer. Cow urine augments the potency of "Taxol" (paclitaxel) against MCF-7, a human breast cancer cell line, in *In - vitro* assays (US Patent No. 6410059). Research also proves that cow's urine boosts the phagocytic activity of macrophages, and is thus helpful in the anticipation and control of infections. It also enables the synthesis of interleukin-1 and interleukin-2, augments B- and T-lymphocyte blastogenesis, and IgG, IgA and IgM antibody⁸. The main goal of this review is to accumulate data associated with properties, chemical composition and diversified uses of cow urine and show the importance of Cow Urine in our health care system.

AYURVEDIC DESCRIPTION OF COW URINE

Ayurveda is medicinal division of Vedas. "Braham vakya janardanam" Meaning Vedas have initiated from Brahma's mouth. It is for welfare of everyone. Therefore, it is called aptopadesh i.e. guidance by near and dear ones. Cow urine makes one disease free by prabhav (nature). "Acintya shakti

iti prabhav" meaning: Incredible power is called "Prabhav". Prabhav is that power which cannot be perceived and distinct. Possibilities of cow urine are specified in ayurveda.

Lord Shiva narrated "Benefits of Urine Therapy" to Mother Parvati which has been mentioned in the ancient book "Dammara Tantra" in Vedas. In ancient books urine is referred as "Shivambu" (Auto urine) meaning water of Shiva.

Therapy of urine is the ancient technique of treatment. The influential practice of curative "Self-urine therapy" has been mentioned in "Shivambukalpa Vidhi" part of 5000 years old text called Dammara Tantra relating this practice to Vedas the holy Hindu texts. Orientation of urine therapy is also found in almost all the volume of Ayurvedic fiction and in one of the volumes of Bhavaprakasha urine is named as "Vishaghna" (Anti Poisonous) destroyer of all poisons and "Rasayan" (Rejuvenative) which can revitalize even old person and purify blood and cures all skin diseases⁹.

Cow urine abolishes the diseases that are caused by poison (Toxin). Numerous poisonous chemicals can be disinfected with the help of cow urine. Cow urine comprises of many minerals specifically Copper, gold, salts, etc. the existence of which defends the body against diseases. Cow urine enhances the resistance power by increasing resistance power against diseases in human body. Hence, it acts as anti toxin¹⁰.

Table 1: Properties and use of Gomutra (Cow urine) according to Ayurveda

Acharya	Qualities	Effect on Doshas	Other effect on body
Charaka ¹¹	Sweet	Decrease Vata, Pitta and Kapha	Wormicide, use in various skin disorders, beneficial in leprosy, itching and ascites
Sushruta Sutra ¹²	Pungent, sharp, hot, light, alkaline	Decrease Vata and Kapha	Promotes intellect and digestive power, beneficial in colic, digestive disorders, constipation, useful as purgative and for non lubricant enema
Astang Samgraha ¹³	Pungent, hot	Increases Pitta, Decreases vatta and kapha	Absorption of materials in between cell and respective environment, wormicide, hemorrhoid, purgative, decoction enema

CHEMICAL COMPOSITION OF COW URINE (GOMUTRA)

Urine in general has got antimicrobial property. It acts as an integral component of Panchagavya in enhancing immune responses^{14,15}. Cow urine accomplishes the lack of essentials and diminishes the amplified essentials in the body. Numerous powerful elements which are almost needed to our body physiologically were recognized by the biochemical study of cow urine. The biochemical estimation of cow urine has revealed that it contains sodium, nitrogen, sulphur, Vitamin A, B, C, D, E, minerals, manganese, iron, silicon,

chlorine, magnesium, citric, succinic, calcium salts, phosphate, lactose, carbolic acid, enzymes, creatinine and hormones⁶.

The contents of cow urine:

- Water – 95%
- Urea – 2.5%
- Minerals, Salts, Hormones, Enzymes – 2.5%

Additional significant constituents with their functions are as follows:

Table 2: Chemical constituents of cow urine and its effects^{16,17}

Sr.No	Chemical constituents	Effect of Chemical Ion
1.	Nitrogen N ₂ , NH ₂ (1-1.7ml/kg/day)	Removes blood abnormalities and toxins, Natural stimulant of urinary tract activates kidneys and it is diuretic.
2.	Sulphur S (3-5mg/kg/day)	Supports motion in large intestines. Cleanses blood.
3.	Ammonia NH ₃ (1-1.7ml/kg/day)	Stabilize bile, mucous and air of body. Stabilises blood formation.
4.	Copper Cu	Controls unwanted fat deposition,
5.	Iron Fe	Maintains balance and helps in production of red blood cells. Stabilises working power.
6.	Urea CO(NH ₂) ₂	Affects urine formation & removal. Antimicrobial
7.	Uric Acid C ₅ H ₄ N ₄ O ₃ (14mg/kg/day)	Removes heart swelling or inflammation. It is diuretic therefore destroy toxins.
8.	Phosphate P	Helps in removing stones from urinary tract
9.	Sodium Na (0.2-1.1mmol/kg/day)	Purifies blood. Antacid
10.	Potassium K (0.08-0.15mmol/kg/day)	Cures hereditary rheumatism. Increases appetite. Removes muscular weakness and laziness
11.	Manganese Mn	Germicidal, stops growth of germs, protects decay due to gangrene.
12.	Carbolic Acid HCOOH	Germicidal, stops growth of germs and decay due to gangrene
13.	Calcium Ca (0.1-1.4ml/kg/day)	Blood purifier, bone strengthener, germicidal
14.	Salt NaCl	Decreases acidic content of blood
15.	Vitamins A, B, C, D, E	Vitamin B is active ingredient for energetic life and saves from nervousness and thirst, strengthens bones and reproductive power.
16.	Lactose C ₆ H ₁₂ O ₆ (3.7830 millimole)	Gives satisfaction, strengthens mouth, strengthens heart, removes thirst and nervousness
17.	Hippuric Acid C ₉ H ₉ NO ₃	Removes toxins through urines
18.	Creatinine C ₄ H ₇ N ₃ O ₂ (15-20mg/kg/day)	Antibacterial
19.	Aurum Hydroxide AuOH	It is germicidal and increases immunity power. Highly antibiotic and anti-toxic
20.	Enzyme urokinase	It is responsible for dissolving the blood clot, improvement of heart disease, blood circulation
21.	Colony Stimulating factor	Effective for cell division & multiplication
22.	Erythropoietin stimulating factor	Major stimulating factor for production of Red blood cells
23.	Gonadotropin	Promotes menstrual cycle, sperm production
24.	Anticancer substances	Prevents multiplication of carcinogenic cells
25.	Enzymes (Lactate-Dehydrogenases, Alkaline Phosphatase, Acid Phosphatase, Amylase)	Make healthy digestive juices, increases immunity.
26.	Phenols (4.7580mg/100ml)	Bactericidal to gram positive and gram-negative bacteria. Therefore, presence of phenols in cow-urine has a potent anti-microbial activity.
27.	Water H ₂ O	It is life giver. Maintains fluidity of blood, maintain body temperature.
28.	Other Minerals	Increases Immunity

Any deficiency or surplus of these elements inside the body causes disorders. Cow urine comprises all of these elements with having a balanced proximate composition. Consequently, consumption of cow urine reestablishes the balance of these constituents and therefore helps in curing from incurable diseases. In healthy cows urine does not contain protein, glucose and hemoglobin.

TRADITIONAL USES OF COW URINE

From ancient time cow is being a divine animal not only in religious sense but in easterly culture they treat it as mother because it is nourishing a whole family through its good diet by providing milk and related products like ghee, butter and curd like a mother¹⁸. Cow urine is held to have healing value

and used in many drug formulations. Essentially, cow urine is used as disinfectant and for purification. Cow urine is proved to be the most effective natural antibacterial and purifier, when compared to the synthetic chemicals those are currently available to the consumers¹⁹. Thus, it supports the element that cow's urine is not a noxious waste²⁰. In the rural villages in India, cow's urine is being used since a very long time as an effective antibacterial for injuries, skin diseases, cleansing, etc. apart from this it is also used as pesticides and

manure¹⁹. Prehistoric Indian Vedic Scriptures including Manu Smriti, Charaka Samhita and Sushruta Samhita and present-day researchers have cited that rational use of this animal product eradicates any non-functionality of respiratory systems, hepato-gastro-intestinal systems, cardiovascular systems, malignancy and several others^{21,22}. Traditional practices of cow urine as medication alone or with certain synergistic drugs has been described in Table 3^{6, 23}.

Table 3: Traditional uses of cow urine and drugs used with cow urine

Diseases	Constituents of gomutra along with adjuvant
Fever	Urine, Pepper, Curd, Ghee
Leprosy	Dhruhardi, Urine
Deformation condition in leprosy	Nimbuchal, Urine
Chronic leprosy	Vasaka leaves, Kuraila bark, Kaner leaves, Neem bark, Urine
Epilepsy	Neem bark, Somapada bark, Mustard oil, Urine
Anemia (Pandu)	a) cow milk, urine, tripala b) loh bhasma, urine, milk

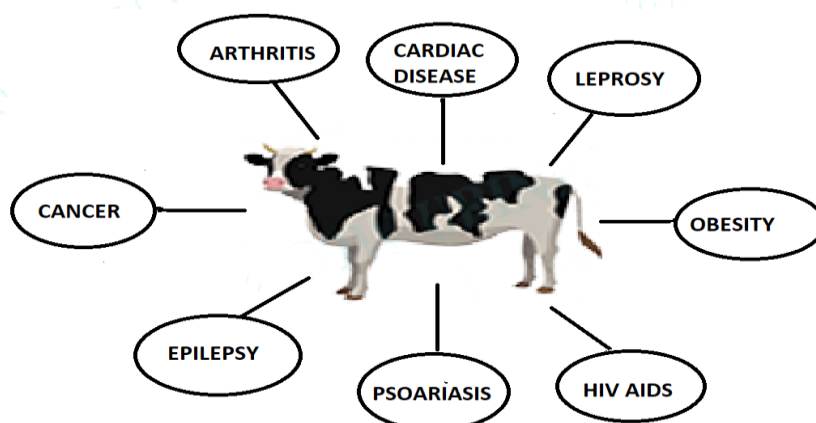


Fig 1: Use of cow urine in various disorders

USES OF COW URINE IN PURIFICATION AND DETOXIFICATION PROCESS²⁴

1. Purification of guggul (Commiphora mukul)
2. Detoxification of aconite
3. Detoxification of dhatura (Dhatura metel)
4. Detoxification and purification of silver
5. Purification of loha (Iron)
6. Purification of Swarna (Gold)
7. Purification of Tamra (Copper)
8. Purification of Naga (Lead)
9. Purification of bhallataka (Semicarpus anacardium)
10. Purification of Abhraka (mica)
11. Purification of Kharpar (Calamine)
12. Purification of Rajavarta (Lapis lazuli)

DIVERSIFIED USES OF COW URINE

According to Ayurvedic literatures the diversified uses of cow urine are as follows

- **For treatment of diseases:** According to Sushrut Samhita sutra sthan 46/220-221 it is used for dealing of Shoola (indigestion), Gulma (intestinal cancer), Udararoga (broadening of the abdominal) and Aanah (flatulence), Cow urine is useful for remedies such as Virechana karma (purgation), Aasthapanvasti (decoction enema) etc. In diseases which are stated as curable by urines, there cow's urine only should be used²⁵. According to Charak Samhita sutra sthan 1/102 destroys Krimi (worms) and Kustha (leprosy), removes Kandu (itching) and taken internally is beneficial in udararoga (enlargement of the abdomen) caused by tridosha²⁶. According to Astang Samgraha sutra sthan 6/141-143 it is useful for treatment of Krimiroga (worm), Shopha, Udararoga (enlargement of the abdomen), Aanah (flatulence), Shoola (colic), Panduroga (Anaemia), Kaphavikar, Vat vikar, Gulma (abdominal tumour), Aruchi, Vishvikar, Shvitraroga, Kushtaroga (leprosy) and

Arshroga (hemorrhoid). It is used for Virechana (purgation), Aashthapanavasti (decoction enema), Aalepa, Swedana (Sweating). It is Agnideepak, Paachak and Malabhedak¹³.

- **For preparation of different formulation:** Gomutra with Haritaki (Terminaliachebula) is beneficial for treatment of Kaphajshoth and Pandu ²⁶.
- **For shodhan of different dravya:** It is also convenient for shodhan of various Rasa-aushadhi like Abhrak (Mica), Kansa (Bronze), Jasta (Zinc), Tamra (Copper), Tutiya (Copper sulphate), Naga (Lead), Rajavarta, Roupya (Silver), Kant Lauha, Swarna (Gold) etc.²⁷ and toxic drugs like Vatsanabh, Dhaturbijaetc²⁸.
- **Modern view:** Cow urine has many valuable properties predominantly in the area of agriculture and therapeutics. Now a days a lot of importance has been given on the therapeutic use of Cow urine in India, Recently the cow urine has been granted U. S. Patents (No. 6,896,907 and 6,4,10,059) for its medicinal properties, mainly for its use along with antibiotics for the control of bacterial infection and fight against cancer¹⁴.

AGRICULTURAL USE

- **For production of Vermicompost:** Decontamination waste (Plant herbage after distillation) and cow's urine has been used for production of vermicompost¹⁴. Vermicompost comprises of higher concentration of macro- and micro-nutrients. Application of vermicompost progresses the yield of lucerne (*Medicago sativa*). Cow urine act like an antiseptic and hence disinfects atmosphere and progresses the utility of land.
- **Biopesticides:** Cow urine after accumulation of Neem leaves is a brilliant biopesticide. Such biopesticides are safe to use, do not accumulate in the food chain and as such do not have the detrimental effects like chemical pesticides¹⁴. It smears an excellent plant growth elevation asset.
- **Fungicide and Biofungicide:** Innumerable experiments demonstrate the fungicidal effect against various species of *C. tropicalis*, *Aspergillus Malassezia*, and *C. glabrata*. CU shows significant outcome in various microorganisms which is responsible for varied diseases in crops²⁹. CUC (cow urine concoction) 5% exhibited extreme antifungal activity against *A. niger* (93%), *A. oryzae* (92.67%) and *A. flavus* (83%).

THERAPEUTIC / PHARMACOLOGICAL ACTIVITIES OF COW URINE

- **Analgesic activity:** In a study of cow urine and its distillate to determine analgesic action using rat tail immersion method it was detected that the animals received cow urine demonstrates good equivalent analgesic effects to standard drug group received Diclofenac Sodium. Their analgesic activity is attributable due to existence of steroidal moieties and some volatile fatty acids in cow urine³⁰.
- **Hemorrhoid:** Clinical estimation of cow urine extract have been done in hemorrhoid patients. Outcome shows that oral supplementation of cow urine in Hemorrhoids patients has prohibited the time consuming, throbbing and expensive complications of Hemorrhoids³¹.
- **Wound healing activity:** Study of wound healing activity of cow urine in wistar albino rats by excision

wound model. The parameter studied was the rate of wound contraction. The studies on excision wound healing exposed that there was a decrease in wound zone. External application of urine displayed important increase in wound healing in male and female rats after Day 4 as linked to all other groups. But till the end of 14th day animals exhibited that only 0 % and 0.40.4 % of healing was left, which may be due to normal immunity of the animals however nitrofurazone, standard drug treated animals showed 0 % and 0.50.3 % healing. Study discovered that the cow urine on external application to the wound fastened the healing progression ³².

- **Immunomodulatory Activity:** Cow's Urine has immunostimulant activity in plants and animals. The usage of herbs and minerals (like chyavanprash and panchgavya) for enhancing the complete resistance of the body against communal infections. As per judgements dried cow urine discovered healthier consequence on immune system associated to methanol, ethyl acetate, aqueous and acetone elements of cow-urine. Prehistoric Ayurvedic theses say that consuming CU on regular basis demonstrates the enhancement in humoral, and cell mediated immune response³³. Cow urine distillate was originating to increases proliferation of T and B lymphocytes, blastogenesis and increases levels of IgG in mice and chicks (avian species) ^{7,34}.
- **Hepatoprotective Activity:** Daily doses of 1-2 ounces of warm cow urine are used to treat cirrhosis of liver. Urine as alone or mixed with honey/salt is also directed for Liver and other problems. Antimony sulphide and cow urine administered internally are used to cure malignant jaundice¹⁴.
- **Antidiabetic activity:** The consequence of cow urine formulation (Gomutra ark, GoA) on experimental alloxan-induced diabetes in rats was studied. Wistar albino rats of either sex weighing 200-250 g were used. The biochemical parameters observed were blood sugar, vitamin C and malondialdehyde (MDA) release. GoA symptomatically drops blood glucose in diabetic rats although the observed consequence was found to be less than standard antidiabetic, glibenclamide. The cow urine distillate also diminishes serum cholesterol and serum triglycerides level laterally with serum glucose level. GoA comprises of volatile fatty acids like acetic acid 2 propenyl ester, acetic acid methyl ester, 2,2,3-trichloro propionic acid, Butanoic acid-3methyl, propyl ester, 1H indol-3-acetate, acetic acid phenyl ester, quinoline, which act as an antioxidant and contributing for the antihyperglycemic effect.
- **Stomach, kidney and heart diseases:** Cow dung and urine are greatest cures for stomach diseases, heart diseases, kidney ailments and tuberculosis¹⁴. Cow's urine is established as a component of several dressings and mixtures (occasionally with agitated wine) or alone, as a medication for obesity, as a purgative; for eliminating pests from an ulcer; vayu disorders, intestinal dropsy and many other diseases. Cow dung act as bacteriocidal in case of malaria and Tuberculosis.
- **Stones:** It can be used for stones (kidney, gall bladder etc.). A glass of fresh cow urine should be taken as a first thing in the morning for 21 days. Uric acid in cow urine liquefies these stones to a manageable size¹⁴.
- **Skin diseases:** It is very cooperative in all kind of skin problems, itching, sunburns, eczema, psoriasis, acne etc²⁵. It also renders the hair soft and clean. Cow urine is

completely sterile after secretion and has antiseptic effect.

- **Antimicrobial and Antifungal activity:** In a study of Cow Urine Distillate against some clinical pathogenic microorganisms like *Bacillus subtilis*, *Pseudomonas aeruginosa*, *Klasiella pneumonia*, *Salmonella typhi* and fungus *Aspergillus niger* and *Aspergillus flavus*. Antibacterial activity of Cow Urine Distillate (5, 10 and 15µl) when analyzed against the pathogenic microbes it was observed to be maximum against *Pseudomonas aeruginosa* (7.06±0.05, 8.08±0.18 and 10.4±1.23, mm in diameter, respectively) and *Salmonella typhi* (6.3±1.23, 8.06±0.17 and 10.4±1.2, mm in diameter, respectively). Antifungal activity of cow urine distillate was analysed against *Aspergillus niger* and *Aspergillus flavus* and comparison showed maximum growth suppression in *Aspergillus niger* (3±0.14, 6.3±1.2 and 7.06±0.04, mm in diameter) than *Aspergillus flavus* (2.03±0.25, 4.9±0.26 and 6.3±1.2, mm in diameter, respectively)^{35,36}.

It was also found that cow urine and its distillate inhibited the free radicals as seen from scavenging of super oxide and DPPH radicals. Fresh cow urine shows significant results in antimicrobial, antioxidant action as compared to cow urine distillates. It is found that cow urine extract of *Azadiractica indica* beneficial in multidrug resistance treatment against *E.coli* and *Klebseilla pneumonia*. Cefixime was used as standard³⁷.

- **Anthelmintic Activity:** CUC was better than piperazine citrate as anthelmintic agent at both 1% and 5% concentrations³⁸.
- **Anticancer properties:** CU has antioxidant properties and is a free radical and thus it deactivates the oxidative stress. CU helps by repairing the damaged DNA and is thus, effective as anti-cancer therapy³⁹.

Chemo preventive potential of CU was observed in a study, which was conducted on 70 Swiss albino mice for 16 weeks. Papilloma were induced by 7, 12 dimethyl benzanthracene and later promoted by repeated application of croton oil. In mice treated with CU, the incidence of tumor (papilloma), tumor yield, and its burden was statistically less than the untreated group³⁰ Effect of Cow Urine on various types of cancers was studied by Jain and his co-workers. Decrease in severity of various clinical symptoms (pain, inflammation, burning sensation, difficulty in swallowing, and irritation) was decreased from day 1 to day 8 with CU therapy. Percent of patients with severe symptoms decreased from 82.16 to 7.9 on day 8, patients with moderate symptoms increased from 15.8 to 55.3 and with mild symptoms, patients increased from 1.58 to 36.34. The severity of symptoms decreased further with continued CU therapy⁶.

- **CNS Effect:** Act as antiepileptic, relieves stress, an herbal preparation popular in Nigeria is based on cow's urine and some herbs recognized as **cow urine concoction (CUC)**. Its major pharmacological actions are anticonvulsant and hypoglycemic properties¹⁴.
- **Bioenhancer:** Bioenhancers are substances, which do not possess drug activity of their own but recommend and enhance the bioactivity or bioavailability or the acceptance of drugs in combination therapy⁴⁰. The indigenous cow urine contains **Rasayan tatva**, which is responsible to moderate immune system and act as bioenhancer. Recently, Cow urine distillate has been granted U. S. patents for its medicinal properties mainly for its bioenhancer activities of generally used antibiotics, anti-fungal and anti-cancer drugs⁴¹.

The activity of Rifampicin, a front-line anti-tubercular drug used in contradiction of tuberculosis, increases by about 5-7 folds against *E. coli* and 3-11 folds against Gram-positive bacteria. Potency of 'Taxol' (paclitaxel) has been detected to get increase against MCF-7, a human breast cancer cell line in in-vitro assays (US Patent No. 6,410,059)⁴¹. It has been found that cow urine also acts as a bioenhancer and upsurges the effectiveness of the antibiotics against infectious agents. Bio enhancement has also been detected with other drugs viz. Ampicillin, Isoniazid, Clotrimazole, Cyanocobalamins etc. Bioenhancer activity has been found to diminish the antibiotic dose per day and duration of action in tuberculosis patients⁴². Zinc (Core drug) and cow urine distillate (Biopotential) showed high fertility index.

CONCLUSION:

Kamdhenu or Indian cow (*Bos indicus*) is worshipped as sacred animal by Hindus. The reason for worshipping is the tremendous therapeutic values of cow derived products as we study in this review versatile therapeutic benefits of cow urine even also use as bioenhancer and use in agriculture, it is ecofriendly economically viable, and easily available at abundance.

In US cow distillates use for dreadful diseases as immunomodulator and for antibiotic resistance infectious diseases. So, they done patent on benefits of cow urine to treat cancer like diseases. There is still a need not only to explore further research possibilities but also to stop cow sacrifice across the world. Each and every part of cow is useful even after its death. It dedicates itself in the service of mankind. Further researches are required to prove its qualities and benefits. Public awareness is required to promote the importance and wide applications of cow urine to improve their health and lifestyle.

REFERENCES:

1. Pathak ML, Kumar A. Gomutra -descriptive study. Sachitra Ayurveda 2003; 7:81-84.
2. Korom FJ. "Holy cow! The apotheosis of Zebu, or why the cow is sacred in Hinduism". Asian Folklore Studies 59(2000):181-203.2.
3. Brown WN. "The sanctity of the cow in Hinduism". The Madras University Journal 28 (1957):29-49.
4. Valiathan M. S. Hyderabad, India, Orient Longman Private Ltd, 2007, The Legacy of Susruta, Page no. 158.
5. Pathak ML, Kumar A. Cow praising and importance of Panchyagavya as medicine. Sachitra Ayurveda 2003; 5:56-59.
6. Jain NK, Gupta VB, Garg R, Silawat N. Efficacy of cow urine therapy on various cancer patients in Mandsaur District, India - A survey. Int J Green Pharm 2010; 4:29-35.
7. Chauhan RS, Singh BP, Singh GK. Immunomodulation with Kamdhenu Ark in mice. J. Immunol. & Immunopath. 2001; 71:89-92.
8. Chauhan R.S. Panchagavya Therapy (Cowpathy)- Current status and future directions. Indian Cow 2004; 1:3-7.
9. Urinetherapy.in homepage on internet (cited 2017 April 19) Available from -<http://www.urinetherapy.in/ancientreference.aspx>.
10. Quora.com homepage on internet Is-gomutra-cows-urine-a good-medicine-for-diabetes-and-obesity (cited- 2017 April 19) Available from - <https://www.quora.com/Is-gomutracs-urine-a-good-medicine-for-diabetes-and-obesity>.
11. Charaka, charaka Samhita, with Ayurveda-Dipikas Ayusi Hindi commentary edited by Kushavaha Harish Chandra Singh, sutrasasthana, chapter 1, verse 111, Published by Chaukhambha Sanskrit Pratishthan, Delhi 2011
12. Sushruta, Sushrut Samhita edited by Sharma Anantaram, Sutrasthana, Chapter 45, verse 217, Published Chaukhambha Surbharati Prakashan. Varanasi 2009.
13. AstangaSamgraha, 2011. Translator Kaviraj Atriveda Gupta, Chow Kambha Krishnadas Academy. Varanasi, Volume I.

14. Dharma K., Rathore R., Chauhan R.S. and Tomar S. Panchgavya: an overview. *International Journal of Cow Science*. 2005; 1(1):1-15.
15. Kumar R., Chauhan R.S., Singhal L.K., Singh A.K. et al. A comparative study on immunostimulatory effects of Kamdhenu Ark and Vasant Kusumakar in mice. *Journal of Immunology and Immunopathology*. 2004; 4:104-106.
16. Samvadsetu-gaumata, home page on internet (cited 2017 April 19) Available from- <http://samvadsetugaumata.blogspot.in/2010/12/cow-urine-content.html>
17. Barnett Beatrice (Dr), *Urine Therapy - It May Save Your Life*, Lifestyle Institute, 1994.
18. Mohanty I., et al. "Diversified uses of cow urine". *International Journal of Pharmacy and Pharmaceutical Sciences* 2014; 6(3):20-22.
19. Kumar S. Analysis of Cow's Urine for Detection of Lipase Activity and Anti-Microbial Properties. *J Pharm Biol Sci* 2013; 7(1):01-08.
20. Bhadauria H. Cow Urine- A Magical Therapy. *Vishwa Ayurveda Parishad. Int J Cow Sci* 2002; 1:32-6.
21. Kumar AA. Study on Various Biochemical constituents in the urine of cow's buffalo and goat, thesis submitted to the C.S.A. Univ Agr Techn, Kanpur (U.P.) 2001;p. 13.
22. Achliya GS, Meghre VS, Wadodkar SG, Dorle AK. Antimicrobial activity of different fractions of Cow Urine. *Indian J Nat Prod* 2004; 20:14-6.
23. Singh Khanuja SP. Pharmaceutical composition containing cow urine distillate and an antibiotic, patent number: 6410059 (2000).
24. Ayurved sarsamgraha, shri Baidyanath Ayurved Bhavan private ltd, Nagpur, 2004,
25. CharakSamhita, 2013. Translator Dr BramhanandTripathi, Chaukhambha Surbharati Prakashan, Varanasi, Volume I.
26. SushrtaSamhita, 2012. Translator Kaviraj Dr. Ambikadatta Shastri, Chaukhambha Sanskrita Sansthan, Varanasi. Volume I.
27. Ayurveda Sara Samgraha, 2013. Shri Baidyanath Ayurved Bhawan Limited Nainiillahabad.
28. Rasatarangini, 2009. Pt. KashinathShastri, MotilalBanarasi Das Dilli.
29. Kumar S. Analysis on the natural remedies to cure dandruff/skin disease-causing fungus - Malassezia furfur. *AdvBioTech* 2013; 12:1-5.
30. Wate SP, Duragkar NJ, Tajne MR and Jadhav SS: Study of Analgesic Activity of Cow Urine and Its Distillate by Rat-Tail Immersion Method. *Indian Journal of Pharmaceutical and Chemical Sciences* Jan Mar 2012; 1(1):95-96.
31. TalokarOmprakash W., BelgeArchana R., Belge Raman S., Clinical Evaluation of cow urine extract special reference to Arsha (Hemorrhoids), *International journal of Pharmaceutical Science Invention*, ISSN (online): 2319 - 6718, ISSN (Print): 2319- 67050X www.ijpsi.org, Volume 2 Issue 3, March 2013, PP.05-08.
32. Sanganal JS, Jayakumar K, Jayaramu GM, Tikare VP et al. Effect of cow urine on wound healing property in Wister Albino Rats. *Veterinary World* 2011; 4(7):317-321.
33. Chauhan RS, Singh BP, Singhal LK. Immunomodulation with Kamdhenu ark in mice. *J ImmunolImmunopathology* 2001; 3:74-77.
34. Kumar P, Singh GK, Chauhan RS and Singh DD. Effect of cow urine in lymphocyte proliferation in developing stages of chicks. *The Indian Cow* 2004; 2:3-5.
35. Athasivam AK, Muthuselvam M and Rajendran R: Antimicrobial Activities of Cow Urine Distillate against Some Clinical Pathogens. *Global Journal of Pharmacology* 2010; 4 (1):41-44.
36. Charmi P Shah, Patel DM, Dhama Paras D, KakadiaJanak et al. In-vitro Screening of Antibacterial Activity of Cow Urine Against Pathogenic Human Bacterial Strains. *International Journal of Current Pharmaceutical Research*. 2011; 3(2):91-92.
37. Rajapandiyam K, Shanthi S, MuruganAM, Muthu GA et al. A: Azadirachtaindica - cow urine extract, a novel controlling agent towards Clinically significant Multi Drug Resistant Pathogens. *Journal of Applied Pharmaceutical Science* 2011; 01(10):107-113.
38. Kekuda PT, Nishanth BC, Kumar PS, Kamal D et al. Cow urine concentration: A potent agent with antimicrobial and anthelmintic activity. *J Pharm Res* 2010; 3:1025-7.
39. Kumar A, Kumar P, Singh LK, Agrawal DK. Pathogenic effects of free radicals and their prevention through cowpathy. *Indian Cow* 2004; 6:27-34.
40. Gururaja M.P., JoshiA.B., Joshi Himanshu, D. Sathyanarayana, EVS Subrahmanyam, KS Chandrashekar, Antidiabetic potential of cow urine in streptococininduced diabetic rats, *Asian Journal of Traditional Medicines*, 2011; 6(1).
41. The Hindu, 4 July, 2002. United States Patent and Trade Office had granted Patent No 6410059 to an "Indian innovation which has proved that cow's urine can make antibiotics, anti-fungal and also anti-cancer drugs more effective".
42. Joshi MM. 2002. Cow therapy (Panchgavya) and cattle based economy. Inaugural speech in Vishva Ayurvedas Sammelan on 7.9.2002. IIT, New Delhi.

JDDT