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REVIEW ON IMPORTANCE OF COW URINE

Gopinath L. R., Thangamani S. and Archaya S.
Department of Biotechnology, Vivekanandha College of Arts and Sciences for Women (A), Namakkal, Tamilnadu, India.

***Corresponding Author Email: lrgopinathnamakkal@gmail.com**

ABSTRACT

Due to the fast growing world, number of diseases are emerging and threatening the life of peoples across the globe. Therefore, it became a necessity to search for an organic source that provides treatment to diseases is running into the minds of the people. Among the research pursued, cow urine is one such cheap and much cost efficient organic source that offers a natural therapy to combat diseases. Cows are the dynamic medical dispensary and cow urine is a magic potion of all diseases. One of the major components of cow urine is 'Panchagawya' that is competent of treating many curable as well as incurable diseases and has been used widely in traditional ayurvedic preparations since time immemorial. Several research has been experimented in Cow urine treatment and research centre, Indore over the past few years and it has been stated that gomutra is capable of curing blockage in arteries, blood pressure, diabetes, arthritis, heart attack, thyroid, cancer, psoriasis, asthma, prostrate, eczema, AIDS, migraine, piles, acidity, constipation, ulcer, ear, nose problems and gynecological problems and several other diseases.

KEY WORDS

Cow urine, anti-microbial.

INTRODUCTION

Cow, *Bos Indicus* is a most valuable domestic animal in Vedic times and considered to be the Mother of all human population. Cow urine has been placed as an important source of India tradition. It has been described as the water of life or *"Amrita"*, the Nectar of god. Indian cow urine is used by majority of the rural population as folklore remedy in almost all the states. *'Ashtanga Sangraha'* is considered to be the most effective substance or secretion of animal origin with numerous therapeutic values (Gulhane harshad *et al.,* 2017).

Mainly, eight types of animal urines are used as medicine described in *Sushruta Samhita, Charaka Samhita* and *Vangbhat*. The urine of cow (typically called *Gomutra*) poses a major part in therapeutics. Specific *liquid wastes of domestic animals* (eight types of urine from different animals) are hot, pungent, sharp, light, bitter and salty as a secondary taste and promiotive for several evacuation processes.

The forest dwelling cow urine secretes medicinally important herbal compounds. Cow urine is not actually a noxious animal waste and contains 95% water, 2.5% belongs to urea content and the remaining 2.5% is a mixture of minerals, salts, hormones and enzymes**.** The potency of Gomutra called Rasayana tattwa is accountable for improving various bodily functions like immunity. Persons who drink gomutra regularly are said to live a healthy life and the remaining are unaffected by the vagaries of old age, even at the age of 90. *Gomutra* is represented as *"Sanjivani"* (Beverages of immortality) in Ayurveda. Besides that, it is used in organic forming as a biopesticide along with cow dung, cow's milk and other herbal ingredients.

According to the ancient literatures, distillate of cow urine was the one considered to exhibit anti-oxidant activity. Few lethal poisons can be refined and purified

if drenched in cow urine for 2-3 days. For example, *Datura (Datura metal)* seeds (with shell peeled off) are considered purified after soaking in *gomutra* for 12 hours. Cow urine can be used for purification of guggul *(Comniphera mukul), loha* (iron) and bhalataka *(Semecarpus anacardium)*, detoxification of aconite *(Aconitum napellus)* and also for purification and detoxification of silver**.**

Cow urine contains nitrogen, sulphur, phosphate, sodium, manganese, iron, silicon, chlorine, magnesium, maleic, citric, tartaric and calcium salts, vitamin A, B, C, D, E, minerals, lactose, enzymes, creatinine, hormones and gold acids. The ingredients of cow urine are similar with the composition present in the human body. Hence, the consumption of cow urine is useful to maintain the balance of these substances and cures incurable diseases.

According to the mythological belief about cow urine is referred as *"Shivambu",* meaning water of Shiva. The powerful practice of healing "Self-urine therapy" has been referred in "*Shivambukalpa Vidhi*" which is a part of 5000 years old document called *Dammar Tantra* linking this practice to Vedas in the sacred Hindu texts. Cow urine increases the immunity strength by increasing resistance power against diseases in human body. The pH of the cow urine ranges between 7.4 to 8.4 with seasonal variations.

The Chemical constituents of healthy cow urine

Ammonia nitrogen: 1-1.8 ml/kg/day
Allantoin: 20- 60 ml/kg/day
Calcium: 0.1-1.6 ml/kg/day
Chloride: 0.2-1.2 mmol/kg/day
Creatinine: 15-25 mg/kg/day
Magnesium: 3.9 mg/kg/day
Potassium: 0.09-0.16 mmol/kg/day
Sodium: 0.3-1.3 mmol/kg/day
Sulphate: 3-7 mg/kg/day
Uric acid: 1-5 mg/kg/day
Leucocyte: 15micro lit

Diseases	Gomutra along with adjuvant
Anaemia	Cow milk, urine, Tripala Loh basma, cow urine, milk
Fever	Cow urine, pepper, curd, ghee
Leprosy	Dhruhardi, cow urine
Chronic leprosy	Urine, Kuraila bark, Vasica leaves, Kaner leaves, Neem bark
Epilepsy	Neem bark, somapada bark, mustard oil, cow urine

The use of cow urine in India can be traced back to the Vedic and also probably notable in prevedic period. Massive therapeutic speciality of cow urine has been most widely referred and used owing to the venerated animal urine. While externally it has been used as lotion, ointments but, internally it has been used in preparation of oral medications and drinks (Ipsita Mohanty *et al.,* 2014). Agriculture and sericulture sectors also uses cow urine other than its use against ailments of diseases as therapeutic agents. Therefore, a diversified use of this heretical potion was in vogue in ancient Indian system of medicine from the ancient medical texts and current scientific findings (Saunders., 1982).

Biochemical analysis of cow urine

The estimation of biochemical of cow urine has shown that it contains nitrogen, sulphur, sodium, minerals, Vitamin A, B, C, D, E, manganese, iron, silicon, chlorine, magnesium, citric, succinic, calcium salts, phosphate, lactose, carbolic acid, enzymes, creatinine and hormones and the presence of these elements is mainly due to the ingestion of various herbs and plants by cows (Singla and Garg., 2013).

Any deficiency or excess of those essential substances inside the body causes disorders. Cow urine consists all of these elements with having an unbiased contiguous composition. Therefore, consumption of cow urine restores the balance of these elements and thus helps in curing from incurable diseases (Bhadauria., 2002). It has also been observed that cow urine enhances the phagocytic activity of macrophages and thus helpful against bacterial infections. It also facilitates the synthesis of interleukin-1 and interleukin-2 augments Band T-lymphocyte blastogenesis, and IgA, IgM and IgG antibody titers (Kumar., 2013).

Indigenous uses of Cow urine

Cow urine is allegedly found to have medicinal attributes and used in formulation of drugs. Essentially, cow urine is used as disinfectant after a minimum process of purification. Thus, it strengthens the fact that cow's urine is not a toxic effluent as 95% of its content

being water, 2.5% urea and the remaining 2.5% constitutes a mixture of minerals, salts, hormones and enzymes (Pathak., 2003). In the rural villages in India, cow's urine is being used since a very long time as effective sacred water for prayers in Hindu mythology etc... The uses of cow urine in treating diseases -

Some of the other diseases that are proven to be cured by cow urine are Cough, Dysmenorrhoea, Migraine or headache, Constipation, Thyroid and Skin diseases like eczema, ringworm, and itching, Acne, Cancer, Heart Diseases, Musculoskeletal Disorders, Male Sexual Disorders, AIDS, Diabetes Mellitus, Blood Disorders, Respiratory Disorders, Gastrointestinal Disorders, Endocrine Disorders, Psychiatric Disorders, Urological Disorders, Asthma, Kidney Shrinkage, Hepatic Disorders and cancer (Singh Khanuja., 2000).

The presence of urea, creatinine, **swarn kshar** (aurum hydroxide), carbolic acid, phenols, calcium and manganese have strongly explained for exhibition of antimicrobial and germicidal properties of cow urine (Nishanth *et al.,* 2010).

Maintenance of cardiovascular system is due to several attributes such as kallikrein that acts as a vasodilator, and ammonia that maintains the structural integrity of blood corpuscles, nitrogen, sulfur, sodium and the enzyme urokinase is a fibrinolyte and calcium components act as blood purifiers, whereas iron and erythropoietin stimulating factor maintain hemoglobin levels and involves in hematopoiesis (Randhawa., 2010).

Cowpathy – A new version of ancient science is becoming the new discovery in treatment and act just like any other system of medicine such as Homeopathy, Allopathy or Naturopathy (Dhama., 2005). The human or animal diseases are treated with several products of cow also known as Panchgavya that includes five components derived from cows i.e., milk, ghee, curd, urine and dung. Panchgavya Chikitsa is describes in ancient medicinal literature of Ayurveda (Chauhan., 2015).

Cow urine in agriculture

Cow urine when sprayed on agricultural crops increases the production of nitrogen (N) component of the soil and a Coriander and rapeseed-mustard is a low input crop and used as flavouring agent in culinary sector for human consumption, and the use of costly and persistent insecticides is not recommended (Hasan *et al.,* 2008). Considering the economic importance of the pest and to reduce the poisonous effect of chemical insecticides to natural enemies, cow urine decoctions of botanicals were tried for its efficacy against mustard aphid by keeping in view the findings (Singh khanuja., 2000; Hasan *et al.,* 2008; Burubhai, Eribo., 2012) as it claims the effectiveness of cow oriented products to insect pests in the agricultural farming.

Anti-microbial and Anti helminthic activity of cow urine distillate

Researchers from CIMAP, Lucknow found that 'cow urine distillate fraction' enhances the activity of antibiotics such as rifampicin by about 5-7 folds against *E. coli* and 3-11 folds against Gram-positive bacteria. Rifampicin is a frontline anti-tubercular drug used against tuberculosis that acts as great immunomodulator. Cow urine has been proved to possess antifungal activity in terms of reduction in vegetative growth of test fungi. The effect of cow urine on fungal spore germination has been studied (Bharath *et al.*, 2010). Reduction in growth of test fungi and suppression in percentage germinating spores of test fungi was observed in the presence of Cow urine distillate by a dose dependant manner. Tambekar and Kerhalkar (2006) investigated the effect of cow urine and cow urine distillate on antimicrobial activity of antibiotics and reported that cow urine and cow urine distillate increased the efficiency of antibiotics against tested bacterial pathogens. Cow urine distillate was more effective bioenhancer than cow urine in combination with antibiotics (Khanuja *et al.,* 2005).

The anthelmintic assay of cow urine concentrate was performed on adult Indian earthworm *Pheretima pasthuma* due to its anatomical and physiological resemblance with the intestinal roundworm parasite of human beings and the parasites die when all signs of movement had ceased due to the presence of chemical present in cow urine concentrate (Nishanth *et al.,* 2010).

Antidiabetic activity

The anti-diabetic effect of cow urine distillate has a moderate magnitude and little less compared with glibenclamide, a popular anti diabetic drug. However, cow urine distillate produces significant lowering of the blood sugar level and validates the claim that it is effective in diabetes. There are many mechanisms by which the increased blood sugar level is lowered. Among the probable mechanisms, increase in the glucose transport across plasma membrane resulting in increased peripheral glucose utilization, decreased glycogenolysis in liver, increased glycogen synthesis from glucose, increase sensitivity of insulin receptors, decreased insulin resistance (Devendar *et al.,* 2015).

Cow eats various herbs, the metabolite of which can be present in urine which balances the release of insulin from beta cells of islet of Langerhans in pancreas and increases the glucose absorption from intestine. Many useful elements have been found in cow urine and the metabolite found in urine might have antihyperglycemic action (Devendar *et al.,* 2015).

Apart from these reactive oxygen species, diabetes also increases lipid peroxidation by initiating the beta oxidation of fatty acids by the cell membrane and is mediated by the fatty acyl coenzyme, an oxidase enzyme resulting in membrane function impairment and altering membrane permeability. Increased lipid peroxidation in the diabetic condition results due to increased oxidative stress in the cells as a result of the depletion of the antioxidant scavenging enzymes (Gulhane *et al.,* 2017).

Apart from this, cow urine has been reported to enhance the immunocompetence of birds and provide better protection along with vaccination and increases egg production and egg quality in poultry farming and also helps to upregulate the lymphocyte proliferation activity (Prabhakar *et. al.,* 2004*).* Cow urine also protects from chromosomal aberrations when induced by mitocycin in human leukocyte (Datta., 2001).

Cow urine against cancer

As cow urine possess extensive anti-oxidant property, it supposes to act agaist cancer cells. Interestingly, it was also found that 'cow urine distillate fraction' enhanced the potency of 'Taxol' (paclitaxel) against MCF-7 a human breast cancer cell line in *in-vitro* assays (Kuldeep *et al.,* 2004). Cow urine helps the blood cells to survive and does induce apoptotic pathway to cause apoptosis. Cow urine therapy has also been claimed to acquire anti-cancer properties and has been recently provided support by the US grant by patenting cow urine in the field of cancer treatment after analyzing its meritorious values on bio enhancing the action of anti-cancer drugs. Several case reports, feed backs and success stories of the patients made a hypothesis on cow urine therapy in curing cancer in the very last few years by its novel application therapy for cancer (Diwaney *et al.,* 2004). Therefore, a step was put forward to evaluate the anti-cancer activity of cow urine.

Benefits of cow urine

Cow urine has proven to be cost effective with minimum adverse reaction when compared to modern day medicine. According to ayurveda, all the five products such as urine, milk, ghee, curd and dung that obtained from cow contain various medicinal properties when mixed with medicinal herbs and they cure many diseases such as AIDS, cancer and diabetes. It has been reported that the cow urine elicits more its boundless medicinal properties.

Cow urine is also used along with herbs to treat diseases like fever, epilepsy, anaemia, abdominal pain, constipation by the traditional healers. There are abundant benefits of cow urine for human ailments such as rheumatoid arthritis, cancer, allergies, kidney failures etc. Cow urine distillate is more effective as a bio enhancer and elevates the efficacy of antifungal, antibacterial and anticancer drugs. It also elevates the action of gonadotropin releasing hormone conjugate with bovine serum albumin (GnRH-BSA). It is an effective antibacterial agent against a broad spectrum of Gram-negative and Gram-positive bacteria and also some drug-resistant bacteria. Amalgamation of cow urine with herbal extracts is used to formulate antiseptic which is recyclable and environmental friendly with good antibacterial activity. They alleviate *Vataja* and *Kaphaja* disorders, those caused by worms, *accumulation of* adipose tissue, *visha* (poisoning), *gulma* (gaseous swelling of the abdomen), *arsha* (piles), skin diseases including leprosy, *shopha* (swelling), *Agnimandya* (loss of appetite), pallor, heart disease. They also involve in arresting carminative and digestive in function.

Cow urine has maximum bio enhancing potency for the antibiotic rifampicin which is the leading edge of anti-tubercular drug used against tuberculosis, elevating its action up to eightfold against *Escherichia coli* and some Gram-positive bacteria. The GnRH-BSA conjugate has an effective outcome on reproductive hormones and oestrogen cycles of female mice tested with cow urine distillate under laboratory conditions. Cow urine distillate acts as a potent bio-enhancer of maximum immunization efficiency to modulate these effects. It has been found that the elevated levels of cow urine improved the growth, development and proliferation of several lettuce characteristics like fresh and dry leaf mass, fresh and dry stem mass, stem length, fresh root mass, fresh head mass and commercial yield.

Cow urine as fungicide and Bio-fungicide

Various experiments had shown fungicidal effect against various species of *C. tropicalis, Aspergillus, Malassezia* and *C. glabrata*. Cow urine inhibits the growth of *Malassezia,* specific fungi (90-95%) which is responsible for causing dandruff for a longer time. It has

also accounted a significant effect in various microorganisms that is responsible for different diseases in agricultural crops. *In vitro* antifungal activity against *A. Flavus* and *C. albicans*, treated with amphotericin B and clotrimazole was similar with cow urine and amphotericin B, but less than clotrimazole. Cow urine concoction exhibited highest antifungal activity against *A. niger*, *A. oryzae* and *A. Flavus.*

Antiseptics

It has been observed that the cow urine showed enhanced wound healing activity in Wistar albino rats. The external application of cow urine showed significant and progressive increase in wound healing in rats compared to the different concentrations of cow urine and 1% w/w nitrofurazone ointment locally.

Immunostimulant

The use of herbs and minerals (like *Chavanprash* and *Panchgavya*) for improving the overall resistance of the body against common infections and pathogens which has been a guiding principle of Ayurveda. The books written about Ayurvedic medicine stated that consuming cow urine daily increases the resistance to diseases by up to 104%. It enhances the humoral and cell-mediated immune response in mice when tested under laboratory conditions. Cow urine distillate was found to enhance the B- and T-lymphocyte blastogenesis, IgG, IgA and IgM antibody titers in mice. It has been observed that cow urine also increases the phagocytic activity of macrophages and thus helpful in the prevention and control of bacterial infections. The level of both interleukins -1 and 2 in mice was increased by 30.9% and 11.0% and in rats these levels were increased by 14.75% and 33.6%.

Anti-urolithiatic activity

Cow urine ark exhibits a potential effect against calculi in the kidneys, bladder, ureter and refurbishment of normal renal function. This type of action of cow urine might be due to its reduced excretion of calcium oxalate and inhibits the process of crystallization. Further experimental studies on benefits of cow urine are required to know its mechanism of action when taken up by the human system.

Anti-microbial activity

The discrepancy in the strength of antimicrobial activity of cow urine is because of the disparity in chemical composition of urine which may arise due to several reasons. It has reported that the fresh cow urine acts as a most effectual antimicrobial mediator than photo activated urine and this is because fresh urine is more acidic in nature (Anami, 2012). A major solitary cause for defiant in antibacterial activity in cow urine concentrate is due to the removal of toxic components from it or there was no formation of biogenic volatile inorganic and organic compounds. It may also be due to presence of more cations and formation of nitroso amines.

The activity of urine sample preparations was comparable with that of the standard, Streptomycin. Fresh cow urine was observed to be the best antagonist for fungal species like *Asperigillus fumigates Candida albicans, Proteus vulgaris and Staphylococcus aureus*. Cow Urine Distillate exhibited maximum growth suppression in *A. Fumigatus*.

Agar well diffusion method was used to test the antimicrobial activity of cow urine and its distillates for the various microbial strains like *Escherichia coli*, *Staphylococcus aureus*, *Staphylococcus epidermitis*, *Bacillus subtilis*, *Klebsiella pneumoniae* and *Proteus vulgaris*. The study is evident that the cow urine distillate has maximum concentration dependent inhibitory effect on *Candida species*. Therefore, the cow urine distillate could be a best alternative to the presently used antifungal drugs to combat the existing problem of antifungal resistance.

Anti-diabetic activity

Cow urine is one of the readily available sources for number of traditional remedies that have several pharmacological actions. Cow urine was able to provide significant protection against diabetes in streptozotocin-induced diabetic rats. Streptozotocin is a widely used antineoplastic agent to treat experimental animals causing diabetes. Streptozotocin is a cytolethal nitroso-glucopyranose derived from the fermentation of *Streptomyces* and it produces diabetes in a number of animals such as rats, rabbits, and mice.

The action of β cells of Islets of langerhans on glucose level has been well studied. The cytotoxic action of this diabetogenic agent is mediated by reactive oxygen species. Poly ADP-ribosylation is phenomena which is a result of DNA damage that leads to the depletion of cellular NAD+ and ATP. Dephosphorylation of ATP processes results in the formation and release of superoxide radicals. In which the drug streptozotocin releases harmful concentrates of nitric oxide that blocks aconitase activity and involves in DNA damage. As a result of the streptozotocin action, β cells are destroyed by necrosis. The minimum glycogen levels are due to the lack of insulin in the diabetic state, which results in the inactivation of the glycogen synthase systems.

Oxidative stress participates vital role in the diabetes. Oxygen free radicals are induced to produce in the body by glucosamine nitrosourea, which causes toxic to the pancreatic cells and could be responsible for the increased blood glucose level. Jarald *et al.* demonstrated that the free radical scavenging potential of cow urine using two *in vitro* models that includes DPPH radical scavenging activity and superoxide scavenging activity using ascorbic acid as a reference standard. It was also accounted that the antioxidant effect of cow urine was due to the presence of volatile fatty acids. Hence the presence of antioxidants, free radical scavengers in cow urine could be highly responsible for its anti- diabetic action. Several investigations on phytochemical analysis of cow urine sample and medicinal plant extracts proves the presence of active phyto constituents like alkaloids, anthraquinones, flavonoids, tannins and saponins which are the main constituents promoting antimicrobial activity, antidiabetic activity etc.

Anticancer activity

Cancer is the term that best describes the uncontrolled growth of abnormal cells that alters its original nature from common cells, and it is collectively called as neoplasm or tumour. Mass of cells that are typically derived from a single cell, and lost its normal control mechanisms and thus has unregulated growth. As cancerous cells grow and multiply, they form a mass of cancerous tissue called as tumor, which invades and destroys adjacent healthy tissue leading to malignancy. Cancer cells from its original growth site has the ability to spread (metastasize) all over the body. The growth of tumour persists in the same indulgence even after cessation of the stimuli/etiology.

Tumors are basically classified into two major categories as either benign or malignant-

Benign: These are slow growing and toxicity depends on the position or location. It is non-cancerous in nature. Neoplasm is well diversified from other normal cells. They stay localized, encapsulated and can be recovered by surgery. It includes certain e.g. Fibroma, Chondroma, Adenoma, Papilloma.

Malignant: Malignant tumors are called as cancer. These are fastest proliferating cells and metastatize to other parts of the body. Cancerous cells spread to a completely new location of the body by a process called metaplasia. Malignant cells are non-capsulated and do not obey chemical signalling mechanisms to act at its growth site. Malignant tumours are sarcoma (Connective tissues), carcinoma (Breast, Lung, Prostate, Cervix etc.)

As the popularity of alternative medicine grows, patients are incorporating more alternative therapies into their conventional cancer care. Many individuals shift themselves to alternative medicine that includes certain herbal based drugs as medicine to treat cancer, instead of taking separately or in addition to the standard treatment. The native indigenous cow urine has efficient immune enhancing property which is because of the subsistence of "*Rasayan*" and has been found missing in urine of other animals on HPLC analysis. Therefore, fresh cow urine possesses anticancer properties.

Research work conducted on the beneficial properties of cow urine at Cow Science Research Center at Nagpur revealed their potencies in the treatment of cancers. Cow urine cyto analysis against combating cancer conceded out by researchers of Central Institute of Medicinal and Aromatic Plants (CIMAP), along with collaboration with Go-Vigyan Anusandhan Kendra, Nagpur confirmed this milestone achievement. Research emphasizes that the responsibility of cow urine in preventing cancers and that fresh cow urine improves the effectiveness and strength of anticancer drugs.

Currently, the momentous accomplishment has been analysed by the grant of U.S. Patent in the field of treating cancers. Scientists have proved that the fruits and vegetables sprayed with pesticides even at very low doses when ingested can cause apoptosis (cell suicide) in lymphocytes of blood and tissues through fragmentation of DNA. Cow urine concentrate protects DNA and repairs it swiftly as noticed after damage owing to the pesticidal activity. It also protects chromosomal aberrations by mitocycin in human leukocyte.

Cow urine activates the survival of lymphocytes and does not tend to programmed cell death (apoptosis). Kumar *et al.,* (2004) reported that the prevention of pathogenic effect of free radicals through cow urine therapy via damage to various tissues and attack enzymes, fat and proteins disrupting normal cell activities or cell membranes, producing a chain reaction of destruction leading to the ageing process of an individual. The habitual utilization of cow urine as a drink could make the magic of youth as it inhibits the free radical's formation. Thus, the cow urine therapy is recommended to possess a strong anticancer ability by the dynamics of the following properties like anti-

microbial activity, anti-oxidant activity, anti-diabetic activity.

Anti-aging factor

Cow urine is considered as the resourceful anti-aging factor, since it eliminates the free radical's formation, which could help progression of reactive oxygen species and thus, preventing cancers incidences of the human population.

DNA repairing potency

Organic cow urine strongly helps in repairing the dented DNA and thus makes the best useful source readily available for cancer prevention and therapy and can also reduce the metastasis of malignant cancers and help combating tumors.

Apoptosis inhibitor

Cow urine can tremendously reduce apoptosis in lymphocytes and helps them to survive, thus the body can avail the tumor fighting abilities of the lymphoctyes at their optimum activity and survivability.

Patenting for Cow urine in the field of cancer

The formulated organic drug components comprised of an enormous amount of herbal extracts along with the bioactive fraction from cow urine distillate is used as a medically acceptable additive tested and applied for a US patent. The novelty makes an extremely innovative utilization of cow urine distillate as an immune modulator and bioavailability catalyst for several bioactive compounds such as anti-infective and anticancer drugs. It was reported that the distillate efficiently condensed the quantity of drug essential for the therapy. 'Kamadhenu Arka' considered its enormous effect with the dried fraction of the urine distillate. The composition basically embraces at least the use of one anticancer agent ('Taxol'- Paclitaxel) and a urine distillate.

Cow urine concentrate was obtained by lyophilisation after a distillation process. The cow urine distillate was used in a concentration range of 0.001µl/ml to 100µl/ml, and at a concentration 1µl/ml was found to enhance the cell division inhibitory activity of the drug 'Taxol' in breast cancer cell line, MCF-7 by 2-20 folds. The concentrate that was obtained in the range of 10-20 gms/100ml of the distillate showed that the same effect at 0.001-10µg/ml was found to be more stable and devoid of nasty odour of cow urine and consequently regarded as the organic product. 'Taxol' (paclitaxel) was effectively acted on MCF-7, a human breast cancer cell line in *in-vitro* assays.

The therapeutic approach, which is made of cow urine and their distillates are safer, cheaper with no side effects in treating the most dreadful cancer. Cow urine has antioxidant properties and thus it neutralizes the oxidative stress. It helps by repairing the damaged DNA and is therefore used in effective anti-cancer therapy. Chemo preventive potential of cow urine conducted on Swiss albino mice for 16 weeks and showed better results. Human Papilloma virus were then induced to mice by 7, 12 dimethyl benzanthracene and later promoted by repeated application of croton oil to analyse the growth of tumourogenesis in the cells.

The experimental animals induced with papilloma virus causes cancer which is treated with cow urine reduced the proliferation of tumour cells in mice**.** The effect of cow urine was studied by Jain *et al.,* and stated that it decreases the severity of various clinical symptoms (Body pain, inflammation, intricacy in swallowing and skin irritation etc.) after administration of cow urine therapy. Cow urine is regarded as the universal medicine and can be the best therapy for mankind in curing various harmful disorders.

It is a non-toxic and can be obtained free of cost through domestication and rearing of indigenous cows. Thus, an integrated system is essential to enhance the highly beneficial qualities and its wide applications of Cowpathy, a new version of ancient science. Utilization of the valuable and meritorious properties of cow urine may not be far away to eradicate the incurable diseases and syndromes like diabetes, cancer, AIDS and other deadly maladies as well.

Several cancer treatments were given with the invention that uses cow urine in along with the novel compounds from selective anticancer agents, antibiotics, drugs, therapeutic and nutraceutical agents, mineral ions and similar molecules which are targeted to the living systems as a preclinical evaluation process. After the treatment with cow urine amalgamation, it helps in reducing the growth of cancer cells, improving the quality of life and increases the survival of life expectancy.

CONCLUSION

The Modulation of the cow urine therapy into the research and other panchgavya elements may be the best sources available for many more patents in the future. The enforcement of cow research and many progression centres in the medicinal utility of cow urine

and generation of authentic data for the support of cow urine therapy in the treatment of cancer by physicians, clinicians, scientists and researchers are given priority, which can strengthen and promote this unique and natural alternate therapy in treating cancer. Studies also poses a significant point that taking care of the natural indigenous cows and breeding them healthily to increase their population releases the organic cow urine for therapy. On analysing different results on cow urine in various research, concludes that cow urine distillate and its concoction makes a strong multidimensional drug. Therefore, considering its tons of health benefits and agricultural boon, cow urine will definitely make a future prospects with effective, environment friendly, cost effective, organic treatment against various human diseases.

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REFERENCES

1. Anami Ahuja, Pushpander Kumar, Ankit Verma, Ranjeet S Tanwar. 2012. Antimicrobial Activities of Cow Urine Against Various Bacterial Strains. International Journal of Recent Advances in Pharmaceutical Research, 2(2): 84-87.
2. Bhadauria H. Cow Urine- A Magical Therapy. 2002. Vishwa Ayurveda Parishad. Int J Cow Sci; 1:32-6.
3. Bharath, A. C., Vinod Kumar, H. R., Shailendra Kumar, M. B., Rakesh Kumar, M. C, Prashith Kekuda, T. R. Insecticidal efficacy of Cow urine distillate (Go-mutra ark) Res Rev Biomed Biotech 2010; 1(1): 68-70.
4. Burubai, W., and M. Eribo. 2012. "Influence of incubation periods and dosage on the bioefficacy of cow urine against melon aphids (Aphis gossypii) and pickleworms (Diaphania hyalinata) in watermelon cultivation." Research Journal of Applied Sciences, Engineering and Technology; 4(2): 269-272.
5. Datta, D. 2001. Effect of Kamdhenu ark, an antioxidant on chromosomal aberration. M.Sc. Thesis, Jiwaji University, Gwalior (M.P.).
6. Devender O. Sachdev., Devesh D. Gosavi and Kartik J. Salwe. 2012. Evaluation of antidiabetic, antioxidant effect and safety profile of gomutra ark in Wistar albino rats. Anc Sci Life, 31(3): 84–89.
7. Dhama, K., S.K. Khurana, K. Karthik, R. Tiwari, Y.P. Malik and R.S. Chauhan, 2014. Panchgavya: Immune-enhancing and Therapeutic Perspectives. Journal of Immunology and Immunopathology, 16: 1-11.
8. Diwanay S, Chitre D and Patwardhan. 2004. Immunoprotection by botanical drugs in cancer chemotherapy. J. Ethnopharmacol. 90(1): 49-55
9. Gulhane Harshad, Nakanekar Amit, Mahakal Nilesh, Bhople Sunanda, Salunke Amrut. 2017. Gomutra (Cow Urine): A Multidimensional drug - Review Article., Int. J. Res. Ayurveda Pharm. 8 (5).
10. Hasan, Wajid, and C. P. Singh. 2008. "Bioefficacy of cow urine decoctions of botanicals against mustard aphid, lipaphis erysimi (kalt.) and coriander aphid, hyadaphis coriandri (das) (homoptera: aphididae)." Journal of Aphidology 22 (1): 41-46.
11. Khanuja, S.P., R. Kumar, A.K. Shasany and J.S. Arya, 2005. Use of bioactive fraction from cow urine distillate ('go-mutra') as a bio-enhancer of anti-infective, anti-cancer agents and nutrients. US Patents US 6,896,907 B2.
12. Kuldeep dhama. 2004. Anti-Cancer Activity of Cow Urine - Current Status and Future Directions.
13. 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
14. Ipsita Mohanty, Manas Ranjan Senapati, Deepika Jena, and Santwana Palai. "Diversified uses of cow urine." Int J Pharm Pharm Sci 6, no. 3 (2014): 20-2
15. Nishanth, B. C., Praveen Kumar SV, D. Kamal, M. Sandeep, and H. K. Megharaj. "Cow urine concentrate: a potent agent with antimicrobial and anthelmintic activity." Journal of Pharmacy Research Vol 3, no. 5 (2010): 1025-1027.
16. Pathak ML, Kumar A. Gomutra -descriptive study. Sachitra Ayurveda 2003; 7: 81-84
17. Prabhakar Kumar (2004). Structural dynamics of apoptosis in avian lymphocytes. M. V. Sc. Thesis submitted to College of Veterinary Sciences., G.B. Pant Univ. Of Agric. and Tech. Pantnagar.
18. Chauhan. R. S. Cowpathy – A new version of ancient science., 2015.
19. Randhawa, G.K., 2010. Cow urine distillate as bio enhancer. Journal of Ayurveda and Integral Medicines, 14: 240-241.
20. Saunders, W. H. M. 1982. Effets of cow urine and its major constituents on pasture properties." New Zealand journal of agricultural research; 25(1) 61-68.
21. Singh Khanuja, S. P. 2000. Pharmaceutical composition containing cow urine distillate and an antibiotic, patent number: 6410059.
22. Singla S, Garg R. Cow urine: An elixir. Innov J Ayurved Sci 2013; 1(3): 31-35.
23. Tambekar D. H., Kerhalkar, S. A. 2006. Cow Urine: A Bioenhancer for Antibiotic. Asian Journal of Microbiology Biotechnology and Environmental Sciences 8(2): 329- 333

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***Corresponding Author:**
Gopinath L. R.*
Email: lrgopinathnamakkal@gmail.com