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Review Article

MEDICINAL VALUES OF GOMUTRA: A REVIEW**Udaya Sri. Jagabathuni*, Deepthika. Patchigolla, Sanmathi. Ramesh, Srikanya. Aare,
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Abstract:

Cow is worshiped as “mother of mankind”. Cow is also considered as economically important animal. Cow urine is a cure for all diseases, and the cow is also known as travelling of “pharmacy animal”. Ayurveda also described the traditional use of cow urine in cure of many harmful diseases. Cow urine also known as Gomutra, has been in ancient Indian Ayurvedic medicine for its medicinal and spiritual properties. Cow urine distillate is basically a concentrated form of cow urine that people use in Ayurvedic medicine to help with different health issues. It's though to have detoxifying and purifying properties. This article provides the available review of literature in cow urine history, introduction, preparation, composition, chemical structure, advantages, disadvantages, formulations, and pharmacological uses.

Key Words: Gomutra , preparation, composition, formulations.

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History:

By 2000 BC, the cow was worshiped in the Hindu society and it has been named as “Kamadhenu” which means it provides all pleasure to humanity. Cow urine has its roots in ancient Hindu scriptures, with mentions in the Rigveda and Ayurvedic texts like Charaka Samhitha. According to the Indian Ayurvedic literature, Sushruta sutra of Sushruta Samhitha, cow urine has pungent, sharp, hot and alkaline qualities which promotes digestive power, useful as a purgative [1]. The Charaka of Charaka Samhita from oldest Ayurvedic literature described the cow urine as a sweet drink which helps to reduces the problems related to Vata, Pitta, Kapha. In Ayurveda cow urine is also known as Madhya and Hridya means it protects heart and brain which is caused by mental tension.

Introduction:

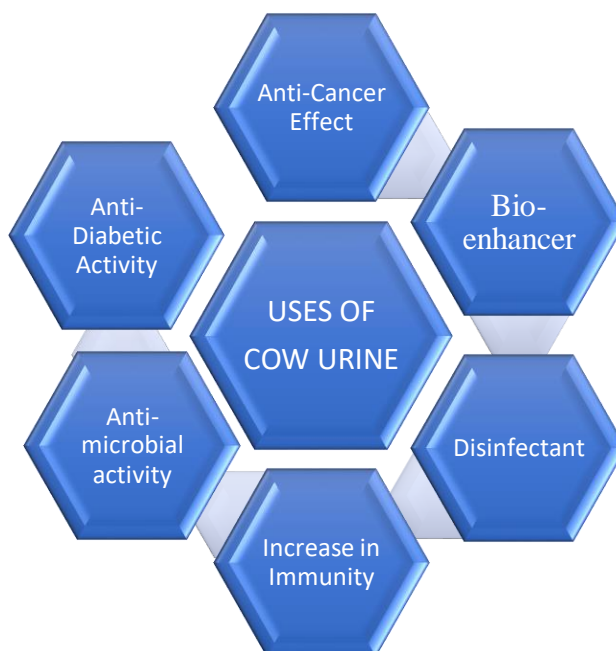
Cow with scientific name “Bos indicus”, is considered as a valuable and holy animal in the Indian Vedas. Cow is worshiped as “mother of mankind”. Cow urine inhibits the growth of microorganism thus also shows different types of activities i.e. antibacterial, antifungal, anticancer, immunomodulatory, antiviral, anti-helminthic, cardiac and renal edema activities etc. Cow urine or gomutra is a bio-enhancer for medicines prescribed for infections and cancers. Gomutra

increases the efficacy and medicinal properties of these medicines and potentially active to fight against with diseases. Now-a-days the cow urine in modern times has been used as a complementary and alternative medicine[2].

BENEFITS[3]:

- Cow urine destroys the poisonous effect like poisonous materials become poison less with in 3 to 7 days.
- It also purifies human body from inside out by removing all the toxins thus curing many diseases such as diabetes, BP, obesity.
- Cow urine provides mode of goodness. It help us to perform correct activities by mind.
- Cow urine helps to enhance the digestify & detoxify the body which supports the overall health.
- It also used as sprays for pest control both in houses as well as for agriculture.
- Helpful in skin disorders.
- Also helps to supports the immune system.
- Helps in Detoxification and promotes digestive health.
- Cow urine may helps in balancing the three doshas.

USES: Some of the uses of cow urine in pharmaceuticals as given below:

Chemical composition of healthy cow urine [4]:

Ammonia	1-1.7 ml/kg/day
Allantion	20-60 ml/kg/day
Calcium	0.1-1.4 ml/kg/day
Chloride	0.1-1.1 ml/kg/day
Creatinine	15-20 ml/kg/day
Magnesium	3.7 ml/kg/day
Potassium	0.08-0.15 ml/kg/day
Sulphate	3-5 ml/kg/day
Sodium	0.2-1.1 ml/kg/day

Composition[5]:

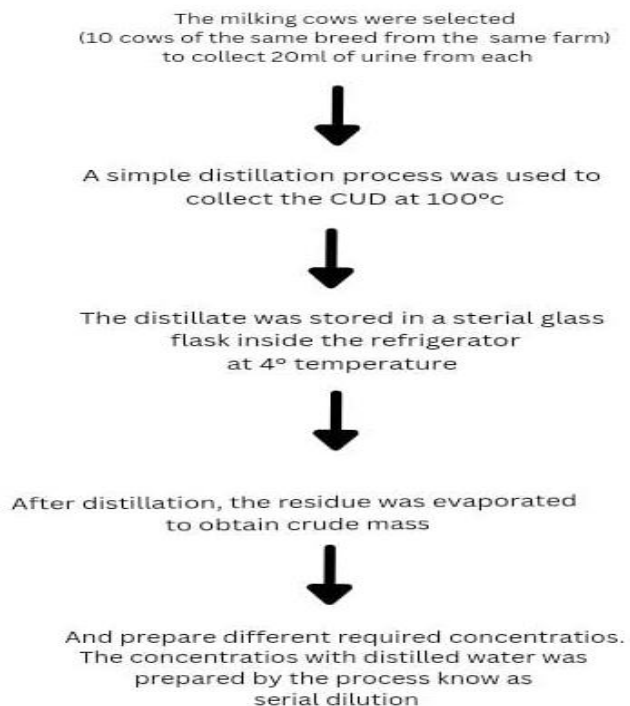
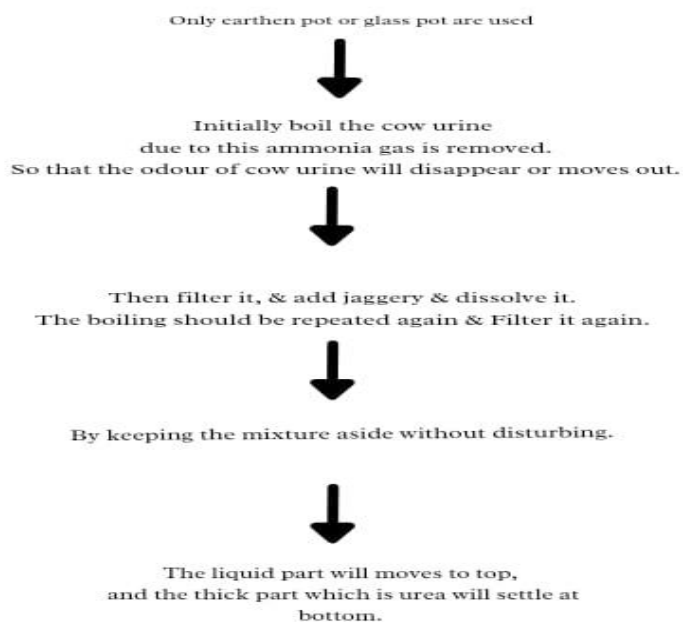
- Healthy cow urine has a volume of 17-45 ml/kg/day. Urea, total Nitrogen ranges between 23-28 ml/kg/day.
- Healthy cow urine does not consist of proteins, glucose, & heamoglobin.

Some Chemical Constituents present in cow urine[6]:

S.NO.	Name of Chemical	Health benefits and medicinal effects
1.	Ammonium (NH ₃)	Stabilize bile, mucous, air of the body and blood formation
2.	Calcium (Ca)	Blood purifier, Bone strengthener, germicidal
3.	Creatinine (C ₄ H ₉ N ₂ O ₂)	Has germicidal properties
4.	Manganese (Mn)	Germicidal, stops growth of germs and decay due to gangrene
5.	Hippuric Acid (C ₉ H ₉ NO ₃)	Removes toxins through urine.
6.	Urea CO (NH ₂) ₂	Affects urine formation and removal, germicidal thus protects the body from pathogenic bacteria and thus protects the body.
7.	Uric Acid (C ₅ H ₄ N ₄ O ₃)	Removes heart swelling or inflammation. It is diuretic therefore destroys toxins
8.	Enzymes	Produces healthy digestive juice, increases immunity
9.	Iron (Fe)	Maintains balance and helps in production of RBC & hemoglobin.
10.	Nitrogen (N ₂), (NH ₂)	Removes blood abnormalities & toxins, Natural stimulant of urinary track, activates kidney
11.	Vitamins A, B, C, D, E	Strengthens bones, provides energetic life
12.	Other Minerals	Improves immunity thereby improves resistance of the body towards pathogen
13.	Sodium (Na)	It is an antacid. Purifies blood

PREPARATION:

Collection of cow urine and CUD preparation[7]:

METHOD-1:**METHOD:2[8]****Cow urine distillation process by using Fermented preparation:**

Formulations:

There are some of the Ayurvedic formulations. That are available in different dosage forms of cow urine:

1. Tablets
2. Capsules
3. Liquid Orals
4. Ointments
5. Oils

Tablet[9]:

Mixing the active ingredient



Addition of excipients, adjuvants, filler.
Then mixing and grinding will occurs.



Pass the mixture through sieve
mess 80-250. Dried and powdered



Then weighed as per batch size.



The ingredients that are mixed with suitable
excipient will sent for capsulation

Capsule[10]:

Mixing the crushed active ingredient in their
required proportion by weight



Addition of excipients, adjuvant, filler
in the required amounts on weight basis



Sieving the resultant mixture through
mess 80-250



Add binding agent to the sieved mixture
then undergoes granulation to obtain
granules.



Dry the granules & add lubricant and excipient



Tableting the granules in a tableting machines

Liquid Orals[11]:

Mix the active ingredient in required proportion.



Equivalent amount of extract are taken



Then mix all the ingredients in a hot water to form a syrup



Suitable pH is adjusted, flavouring agents, colour, stabilizer are added in required amounts



Whole liquid is filtered through filter press & are filled in bottles by using automatic filling machine

Ointments[12]:

Take the ointment base to this add pulverising active ingredient.



Mix the API with ointment base



The powder material and ointment base and other liquid material are transferred in a ointment mixing machine



Undergoes proper heating and mixing then allowed to cool



Passed it through a tripple rooler machine to get uniform mixing of ointment.

Oils[13]:

Mixing the API in their proportions by weight



Pulverising the active ingredient individually
& mixing in required proportion



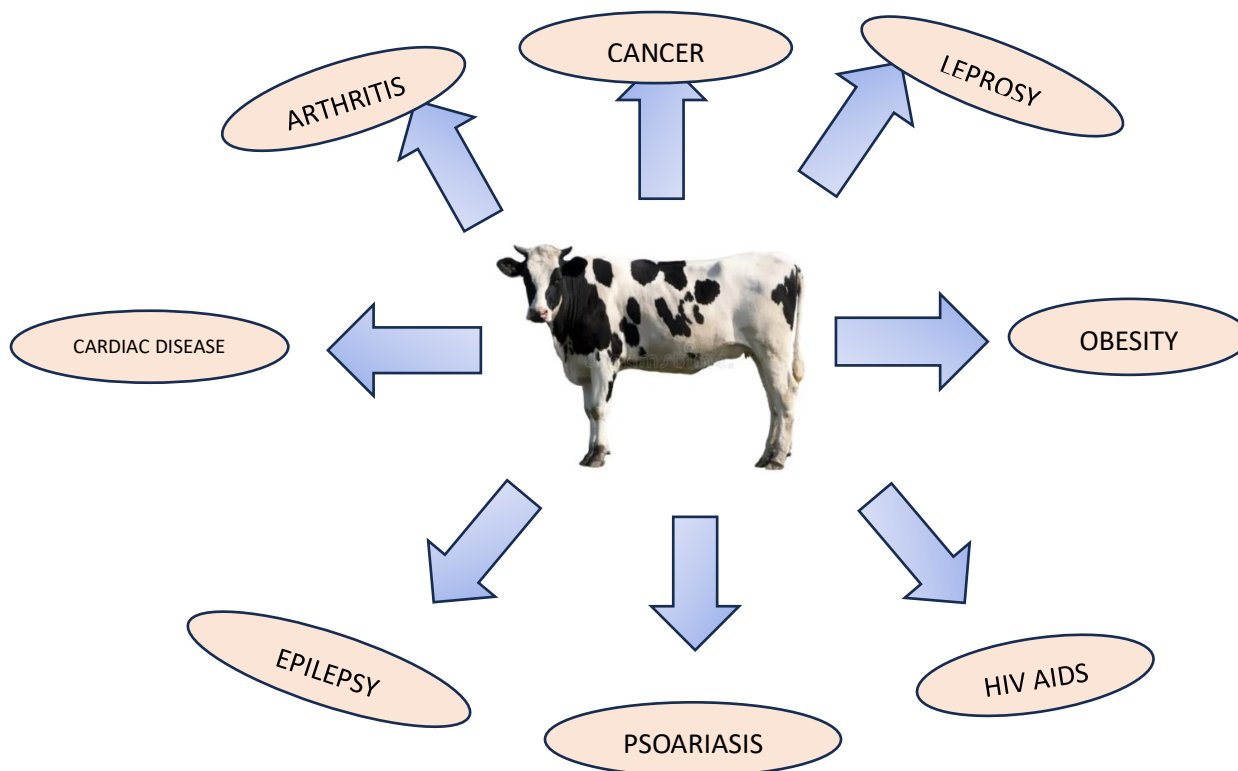
The liquids are added to the resultant mixture



This mixture is mixed in a mixer the solid
raw material are weighed and powdered



All these are added to the oil bulk, all the oil in
mixed to have proper product

Pharmacological Action[14]:

Fungicide and Bio-fungicide[15]:

Several experiments demonstrate a fungicidal effect against different species of *C. tropicalis*, *Aspergillus*, *Malassezia*, and *C. glabrata*. cow urine significantly inhibits the growth of *Malassezia* fungi-responsible for dandruff-by 90-95% for an extended period of 4-5 days. Additionally, cow urine has a notable impact on various micro-organisms that cause different crop diseases. Studies found the lemon juice and neem leaf extracts are less effective than cow urine.

Anti-Microbial Effect[16]:

There are various ways to develop the resistance against antimicrobial drugs. At present scenario the use of antibiotics has been increased. The antibacterial activity of cow urine and its various extracts was assessed against pathogenic strains including Gram-negative bacteria like *E. coli*, *Pseudomonas aeruginosa*, and *Klebsiella pneumoniae*, along with Gram-positive bacteria such as *staphylococcus aureus* and *Streptococcus pneumoniae*. The Studies have shown that cow urine has antimicrobial effect against a bacteria and pathogens, including *E. coli*, *Salmonella typhi*, *Proteus vulgaris*, *S. aureus*, *Bacillus cereus*, *Staphylococcus fragi*, *S. agalactiae*, *Enterobacter aeruginosa*, *Aeromonas hydrophila*, *Micrococcus luteus*, *S. pyrogens*, *Bacillus subtilis*. In these studies, the antimicrobial activity of cow urine was found to be comparable to that of antibiotics like ofloxacin, ciprofloxacin, ampicillin, chloramphenicol, nalidixic acid, rifampicin, tetracycline, streptomycin, cefpodoxime, and gentamycin

Antiseptic [17]:

Cow urine significantly improved wound healing in Wistar albino rats. By applying cow urine externally it shows continuous improvement and also heal faster in wound healing when it compared to various concentrations of cow urine and a 1% w/w nitrofurazone ointment.

Immunomodulators[18]:

Using herbs and minerals, like chavanprash and panchgavya, to boost the body's resistance to common infections has been a core principle of Ayurveda. Ancient texts suggest that consuming cow urine daily can enhances disease resistance by as much as 104%. Research shows that cow urine improves both humoral and cell-mediated immune responses in mice. Specifically, CUD has been found to increase the activation of B & T-lymphocytes, as well as raise levels of IgG, IgA, and IgM antibodies. It also boosts the phagocytic activity of macrophages, aiding in the prevention and control of bacterial infections. CUD is considered a powerful and safe immunomodulator that enhances both types of immunity in mice.

Anthelmintic Effect[19]:

The effects of cow urine concentrate (CUC) on adult Indian earthworm, specifically "Pheretima posthuman", because of their anatomical and physiological similarities to the intestinal roundworm that infects humans. They found that treatment with CUC led to the paralysis and death of the worms. They also compared these results to those from the standard medication piperazine citrate.

Additionally, a separate study examined the combined anthelmintic activity of panchagavya (PG) with an ethanolic extract of *baubhinia variegata* Linn (EEBV) on *pheretima posthuman*. The results indicated that both Panchagavya on its own and its combination with EEBV were more effective than Piperazine citrate. This synergistic effect is likely due to the presence of cystine protease, which breaks down the structural protein of the nematodes, leading to their digestion.

Anticancer effect[20]:

Cow urine has antioxidant properties and can neutralize free radicals, helping to reduce oxidant stress. It also plays a role in repairing damaged DNA, making it a potentially effective anti-cancer treatment. A study on 70 Swiss albino mice over 16 weeks highlighted CU's chemo preventive potential. Researches induced papillomas using 7,12 dimethyl benzanthracene and promoted them with repeated applications of croton oil. The mice given CU showed significantly lower rates of tumors, tumors yield, and overall tumor burden compared to those that didn't receive the treatment. Additionally, in some investigation the effect of cow urine on various cancers. They found a marked decrease in the severity of symptoms like pain, inflammation, burning sensation, difficulty swallowing, and irritation from day one to day eight of CU therapy. The percentage of patients experiencing severe symptoms dropped from 82.16% to 7.9% by day eight, while those with moderate symptoms increased from 15.8% to 55.3%. Patients with mild symptoms rose from 1.58% to 36.34%. The reduction in symptom severity continued with ongoing CU therapy.

Bioenhancer[21]:

A bioenhancer, or biopotentiator, is a substance that boosts the bioavailability and effectiveness of other active ingredients its paired with, while not having any effects of its own at the dosage used. In Ayurveda, the principle of 'yogvahi' describes the bioenhancing properties of medicines. This principle helps increase oral bioavailability, which in turn lowers the required doses and reduces side effects. By combining Ayurvedic knowledge with modern research techniques, we can create more effective drug

formulations that serve as bioenhancers in antifungal, antimicrobial, and anticancer treatments.

CUD also increases the bioavailability of Rifampicin, a first-line anti-tubercular drug, enhancing its effectiveness against *E. coli* by up to seven times against Gram-positive bacteria by up to eleven times. Furthermore, CUD improves the transport of antibiotics such as Rifampicin, Tetracycline, and Ampicillin across the gut wall and through artificial membrane.

Conclusion: Cow urine has a greater importance to humanity. The traditional use of cow urine for different purposes has been proved scientifically. Cow urine is a sacred fluid in Ayurveda, has been used for centuries in traditional medicine. Its rich history, culture, significance, and medicinal properties make it a valuable resource. Through this review I explored the various aspects of cow urine, including its history, introduction, preparation methods, composition, chemical structures, benefits & uses, formulations, and pharmacological actions.

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