

## Physicochemical Study of Gomutra and Formulation of Gomutra ARK

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**Abstract:** Gomutra is important part of Indian tradition. It is not only holy but also has various important medicinal uses. Classical treatises in Ayurvedic. Charka, Sushruta and Vagbhata Samhita has described Ashtamutra (eight types of urine) along with their properties, indication and formulations. Cow urine is one of them. In this modern era, the diseases related to life style like cancer, autoimmune diseases, diabetes, AIDS etc. are increasing day by day. Irrational use of antibiotics is also responsible for increase in antibiotic resistant infectious diseases. Gomutra (Cow urine) is scientifically proven to act as an immunomodulator along with its bacteriostatic action. Various actions and researches on cow urine are summarized in this article. However, more studies experimental as well as clinical can throw better light on it.

**Keywords:** Cow urine, antimicrobial activity, gomutra ark.

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### I. Introduction

Cow urine has a special significance in Indian tradition. Cow urine is said to have a spiritual cleansing effect as well. Cow urine has been described as water of life or "Amrita" (beverages of immortality) the nectar of the God. "Panchagavya" is a combination of cow urine, milk, dung, ghee and curd. Indian cow breeds are unique and distinct species, popularly known as "Kamdhenu" (One who can complete all wishes of mankind) and "Gaumata, (Cow is called as mother). It has high socio-cultural values, plays significant role in rural economy, represent cattle wealth and bio-diversity. In Charaka Samhita, Sushruta Samhita and Vagbhata described eight types of animal urines that can be used in medicine. Urine of cow is used in therapeutics. All these mutras (eight types of urine from different animals) are sharp, hot, pungent, bitter with salty as a secondary taste, light and promotive of evacuation. They relieve 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, shophha (swelling), Agnimandya (loss of appetite), pallor, heart disease. They are dipaniya and pachaniya (digestive and carminative) in function. The ancient Indian system of medicine, Ayurveda, has mentioned importance of panchgavya in the treatment of various human diseases. Apart from high medicinal values, panchgavya is also used in agriculture, organic farming as natural manure pesticides, fertilizer, pest repellants and as alternate energy resources. Cow being mother of all living entities gives all pleasures to everyone all the products of cow are used as medicines. Several curable and incurable diseases can be managed by use of cow urine as a medicine. The Ayurvedic classical texts, such as Charaka Samhita, Bhavprakash and Sushruta Samhita, have described these indications for cow urine. Though modern medicine has helped us to eradicate and cure several diseases of mankind and animals But the existence of incurable diseases like cancer, acquired immunodeficiency syndrome (AIDS), diabetes, rheumatoid arthritis, side effect of allopathy medicine, increasing trends of antibiotic resistance and chemical and bio pesticides causing dietary risk has made the situation more critical than ever before. Thus it has become the matter of concern for the scientist and researcher to develop novel therapies. Cow urine has proven to be cost effective, with minimum adverse reaction when compared to modern medicine all the five products such as urine, milk, ghee, curd and dung obtained from cow contain various medicinal properties, and are used singly or in combination with different medicinal herbs against many diseases including AIDS, Cancer, and Diabetes. Cow urine contains nitrogen, sulphur, phosphate, sodium, manganese, iron, silicon, chlorine, magnesium, malefic, citric, tartaric and calcium salts, vitamin A, B, C, D, E, minerals, lactose, enzymes, keratinize, hormones and gold acids. Medicinal Properties of Cow urine has been granted by US, as Patents (No. 6,896,907 and 6,410,059); bioenhancer, antibiotic, antifungal, and anticancer agent properties are particularly mentioned in those patents. Cow urine increases potency of "Taxol" (paclitaxel) against MCF-7, a human breast cancer cell line, in in vitro assays (US Patent No. 6,410,059). (1)

Formulation:-



**PROCEDURE FOR STEAM DISTILLATION-**

1. Assembly was set up.
2. Taken 500 ml Gomutra in round bottom flask.
3. Heat the flask slowly and carrying out the distillation.
4. Heat the flask at 60<sup>0</sup> to carry out stem distillation.

- Receiver is attached to condenser (conical flask).
- 250 ml Gomutra Ark is collected in conical flask.
- Further Ark is used in to check the activities.

### STUDY OF ANTI-MICROBIAL ACTIVITY OF GOMUTRA ARK:

Anti-microbial activity of the Gomutra ark can be detected by observing the growth response of various microorganisms to that ark which are placed in contact with them. Many methods for detecting such actions of organism are available but since they are not equally sensitive, the results obtained will be influenced by the method selected and the microorganism used for the test. In order to detect anti-microbial activity of the ark, three conditions are required to be fulfilled. First, the ark must be brought in to contact with the cell wall of the microorganism that have been selected for the test. Second, conditions must be adjusted so that the microorganism are able to grow when no anti-microbial agent are present. Third, there must be some means of judging the amount of the growth, if any made by the test organism during the period of time chosen for the test. Minimal inhibitory concentration (MIC) of an antibiotic is the minimum concentration required to inhibit the growth of the test organisms after 18-24 hours of incubation. In other words, MIC is the highest dilution of an antibiotic, which can inhibit the growth of the test organisms. An antibiotic possesses different minimal inhibitory concentration values for different micro-organisms. On the other hand, a micro-organism needs different inhibitory concentrations for different antibiotics.

#### Media:

Nutrient agar media was used and was prepared in distilled deionized Water. The composition of the media was as given under:

S, No.	Ingredients	Quantity Required For 100 ml (in g)
1.	Peptone	5.1
2.	Sodium chloride	5.0
3.	Beef extract	1.5
4.	Yeast extract	1.5
5.	Agar	1.5

#### Preparation of media:

Dehydrated nutrient agar medium (28 g) was accurately weighed and suspended in 1000 ml of distilled water in a conical flask. It was heated on a water bath to dissolve the medium completely. Direct heating was avoided as it may lead to charring of the medium components and render it useless for the purpose. Sterilization of media: The conical flask containing the nutrient agar medium was plugged with the help of a non-absorbent cotton bung. The mouth of the conical flask and cotton bung were properly covered with aluminum foil. The medium was then sterilized at 15-lbs/in<sup>2</sup> pressure for 20 min.

#### Sterilization of media:

The conical flask containing the nutrient agar medium was plugged with the help of a non-absorbent cotton bung. The mouth of the conical flask and the cotton bung were properly covered with aluminum foil. The medium was then sterilized by autoclaving at 15-lbs/in<sup>2</sup> pressure for 20 minutes.

#### Methods of preparation of Test Organisms:

The test organisms were maintained on slants of medium and transferred to a fresh slant once a week. The slants were incubated at 37<sup>o</sup>C for 24 hours. Using 3 ml of saline solution, the organisms were washed from the agar slant on to a large agar surface (medium) and incubated for 24hours at 37+2 <sup>o</sup>C. The growth from the nutrient surface was washed using 50 ml of Distilled water. A dilution factor was determined which gave 25% light transmission at 530 nm. The amount of Suspension to be added to each 100 ml agar or nutrient broth was determined by use of test plates or test broth, the test organisms were stored under refrigeration.

#### Anaerobic Bacteria:

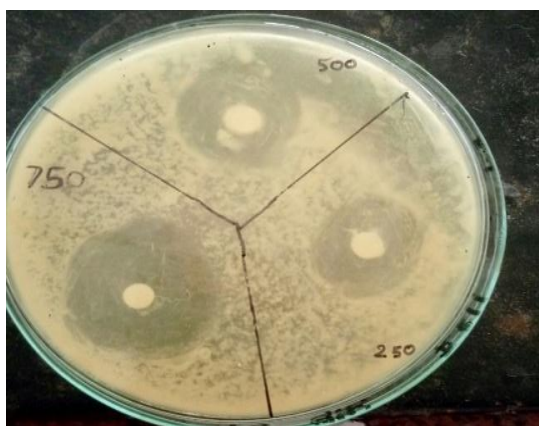
Bacteria those do not require oxygen for survival. Anaerobic bacteria cannot bear oxygen & may die if kept in oxygenate environment (anaerobic bacteria are found in place like under the surface of earth, deep ocean, & bacterial live in some medium.)

#### Gram Positive and Gram Negative bacteria:

Bacteria are grouped as 'Gram Positive' bacteria & 'Gram Positive' bacteria, which is based on the result of Gram staining method (in which, an agent is to bind to the cell wall of the bacteria) on bacterial.

**Experimental Method:**

The compound were for their in- vitro evaluation of antimicrobial activity was carried out by using disc diffusion method. The antimicrobial activity of was used as a standard drug and response of microorganisms to the synthesized compounds has been measured with that of the standard drug ciprofloxacin and microorganisms were selected for the study was *Escherichia coli*(Gram -ve), *stapylococcus aureous* (+ve).Were procured from Microbes Specialty Lab. The medium was suspended in 100ml of purified water. The mixture was allowed to boil till it forms a homogeneous solution. The medium was autoclaved at 121°C for 15minutes at 15psi. Media was cooled to the temperature of approximately 40°C temperature and microorganisms were inoculated to the media. 150ml was transfer to a Petri plates aseptically. Two such plates were prepared for each organism. Plates were allowed to cool for 20 minutes. Compounds were dissolved in DMSO and diluted in same to get concentration of 250µg/ml, 500µg/ml and 750µg/ml. Here both high and low strength disks were applied for each compound to be tested. The organism was reported as being sensitive if clear zone appears around both disks. Ciprofloxacin 100µg/ml was used as standard.



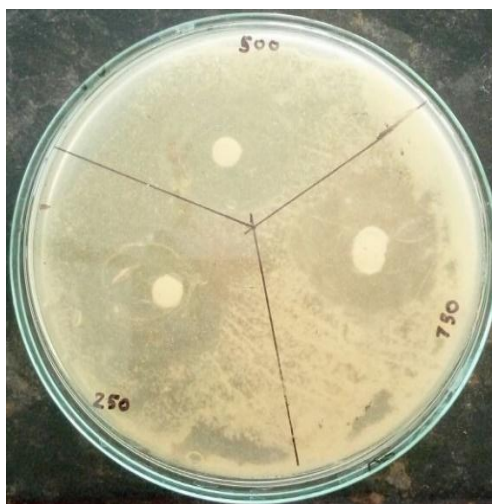
**Fig:** Gomutra on the *Staphylococcus aureous* Bacteria



**Fig:** standard cefpodoxim on the *Staphylococcus aureous* Bacteria



**Fig .**Gomutra on the *E.coli* bacteria



**Fig .**standard cefpodoxim on the *E.coli* bacteria

**PH OF GOMUTRA-**

**7.4- 8.4** which is generally basic in nature.

**II. Conclusion**

On analyzing different result on cow urine in it concludes that cow urine and its concoction is really multidimensional drug. *Ayurveda* already told that fresh cow urine digamous cow is the best. More well-planned experimental, animal studies in human/animal subjects are required gather more data about to assess its potential as an effective anti-cancerous, antimicrobial an diabetic, anti-urolithiatic, anti-psychotic etc

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