

# Gomayapriya: A Priceless and Multirole Cow Excretion

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## Abstract:

Bovine animal cow is worshipped in Hindu religion. Cow dung (CD) is known as Gomaya in Sanskrit language. In ancient scriptures CD is described as Gomayapriya and Haritgomaya. About CD it is said 'gomayavaasteylakshmi' i.e. in CD lives Lakshmi. CD is co-product of cow obtained from cattle excretion. CD contains Nitrogen, Phosphorus and Potassium in the ratio of 3:2:1. CD also contains vital elements like Calcium and Manganese. Trace elements such as Fe, Co, C, Cu, Zn, Mn etc. are also present in CD. Presence of microbial diversity namely bacteria, protozoa and yeast make CD suitable for many aerobic activities. Due to suitable C:N ratio, CD has significance in agricultural sector as manure [1-3].

Composition and several applications of CD are discussed in present paper. Significance of CD since ancient to modern days are reviewed. Importance of sacred Panchgavya is mentioned. Online retailers like Amazon, eBay and Flipkart has are now available for CD sale @ INR 10/Kg. In packs of 1,5,10 Kg. Government buys CD @ INR 1.5/Kg in the state of Chattisgarh [4].

**Keywords:** CowDung, Bovine Animal, Gomaya, Panchgavya,

**Abbreviations:** CD,FAO, DAHD,

## Introduction:

Cattle or cows belong to cloven-hooved Animalia kingdom. Further, cattle comes from Bovidae family and Bovinae subfamily. These large domesticated animals are herbivores. Cows are generally upraised to obtain milk, flesh and hides. Cow bones are used in making jewelry and serving aides. Bovinae are also used as sporting animals (bullfighting), riding animals, drafting animals to pull carts and plowing agricultural fields. Above said applications are commonly known whereas use of cow dung in anthropogenic activities is sparingly known and documented. Cattles were fully mapped all over the world in 2009. According to 2018 mapping of cattle by FAO (Food and Agriculture Organization) the total population stands at around 1.5 billion excluding feral cattle. On an average a cattle yields 10 Kg of cow dung per day. Thereby, approximately 15 million tones of cow dung is released per day by bovine cattle. Obtaining and selling CD has now become easier with the inclusion of online retailers like Amazon, eBay and Flipkart as sellers and Chattisgarh Government as buyer of CD.

According to DAHD (Department of Animal Husbandry and Dairies), GOI census 2019, India's cattle inventory stood at 192.49 million followed by Brazil, USA and China. Amongst all long horned mammals, the cow is treated as most sacred in India and worshipped. Most Indian states have imposed ban on beef eating [5,6].

In Hinduism CD has great significance. Ancient Hindu scripture the Upanishads describe cow dung's importance as 'gomayavaastelakshmi'. Means, Lakshmi lives in cow dung. Lakshmi Ji is deity of Wealth, health and happiness. Another use of cow dung has mentions in holy text of Sri Bhagwatam where cow dung is wrapped on the body of Lord Krishna after being breastfed by demoness Putna, to remove toxicity of milk. In Hindu mythology there are 84 million living entities in universe, out of which only cow's dung is said to be pure. More specifically, gomaya is called gomayapriya or haritgomaya in old Indian literature. In many countries CD is also called cow pie or cow pat. In raw form CD is easily available. It can be obtained from stray cows, farmer's households and dairies.

The undigested excretion of other domestic animals like buffaloes, yak, bison can also perform similar applications. However, waste from other animal's gut is treated impure and unsacred.

In India and neighboring countries like Pakistan, Nepal, Sri Lanka, Bangladesh etc., the CD is widely used in rituals and ceremonies, agriculture sector, energy sector, therapeutic sector, building material sector. CD finds extensive use in agriculture, domestic fuel, energy fuel, insect repellent, thermal insulator, paper industry ingredient, paint industry ingredient, wall cleanser, moisturizer and oil absorbent. On the economical front, all the applications of CD are cost effective and feasible [7].

### Composition of CD

Composition of CD mainly depends upon grazing area type, animal fed, water quality, environment, humidity, temperature, cowshed etc. CD is rich in nutrients and high in organic materials. Generally CD has all the three components required for manure i.e. Nitrogen (N), Phosphorus (P) and Potassium (K) in the ratio of 3:2:1. Other elements which are abundantly present in CD are Calcium (Ca) and Manganese (Mg). CD also contains many other essential nutrients such as B, Cu, Mn, S, Fe, Cb and Zn. The CD has high C:N ratio (18 or less) which makes it suitable for adequate plant growth and protection.

CD is a mixture of urine and faeces in the ratio of 1:3 and mainly consists of cellulose, hemicellulose and lignin. CD is a rich source of candida and Saccharomyces (yeast and protozoa). Microbial diversity such as Bacillus spp, Corynebacterium spp and Lactobacillus spp can also be observed in CD. Past studies have isolated various bacterial genera such as Pseudomonas spp, Providencia stuarti, Pasteurelia spp, Citrobacter koseri, Escherichia coli, Enterobacter aerogenes, Klebsiella oxytoca, Klebsiella pneumoniae and Morganella morganii from CD [8-10].

### Advantages of CD

CD is waste unless utilized in sacred & scientific manner. CD has vast potential to be utilized as co-product of cow. Various uses of CD are mentioned below:

#### A. Agricultural:

1. Insect Repellent: In India and suburbs dried CD powder mixed with wood/coal ash and crushed Neem leaves is sprinkled on plants thrice in an interval of 5 days, to repel invading insects for crop protection.
2. Manure: Decomposed CD is uniformly spread in cultivated lands in order to replenish the quality of soil. It increases porosity, aeration and binding of ploughed land. It also increases microbial activity of soil. CD treated soil softens to absorb more water and reduces runoff [9,10].

#### B. Fuel:

1. Dried Cakes: In rural areas women folks make CD cakes, leave them to dry in sunlight for few weeks. Dried cakes are then used for firing hearths. This practice generally relieves dependence of housewives on firewood for cooking.
2. Biogas Plants: CD mixed with water is accumulated in storage tanks to produce biogas. Low pressure biogas is brought to rural kitchens through pipelines thus conserving other fossil fuels like coal, gas, kerosene oil etc. Resultant of biogas plant can be used as manure.
3. Briquette Plants: Instead of direct use of CD as domestic fuel, briquettes are manufactured from a mixture of CD, rice husk, wooden filings and water. Small pieces of cut & dried briquettes is then used for domestic and commercial cooking.
4. Energy Plants: Briquettes and Biogas is used in Micro Power Plants (Less than 100KW) to heat closed circuit water cycle. Boiled water is allowed to produce steam which rotates generator coupled to steam turbine. Electricity thus produced can be used for self consumption or can be injected into local grid [11,12].
- C. Ritual and Ceremonies: HavanSamagri mixed with dried CD is used in performing yagna in Hindus. It is believed that fumes coming out from yagnakund purifies atmospheric air and gives invitation to deities to come and stay in premises.
- D. Thermal Insulator: Layer of CD dipped in water is used for inside coating of building walls. Since CD contains fibrous faeces which are bad conductor of heat. Thus CD coated walls act as thermal insulator. It keeps the interior cold in summers and warmer in winters.
- E. Mosquito Repellent: CD cakes are burnt to produce smoke which repels mosquitoes. Such a practice is carried out in dairies to protect livestock from blood suckers [13,14].
- F. Anti-toxicant: Ancient Indian scripture has descriptions that CD was applied on whole body of Lord Krishna to neutralize the effect of venom breast fed by demoness Putna. Tradition is still live in many tribal areas.
- G. Moisturizer: Diluted CD mixed with clay is applied on human skin for softening and freshness of skin.
- H. Oil Absorber: Direct application of fresh CD on human body absorbs extra oil from skin.
- I. Paint and Emulsifier: KVIC (Khadi and Village Industries Commission of India has developed KhadiPrakritikPaint and Khadi Vedic Paint from CD. Paint is antibacterial, antifungal and anti-toxic. The paint is free from heavy metals such as arsenic, cadmium, chromium, lead and mercury. These paints dry quickly and last 6-8 years [15].
- J. Pachgavya: Specialty is prepared from three direct products namely cow urine, CD and milk and two indirect products namely curd and ghee in particular ratio to perform traditional poojas.
- K. Paper and Board: Fibrous constituents of CD make it suitable for pulp, paper and board industry [16-18].

## Conclusion

CD has a sacred role in India. It is extensively used in houses and industries. CD is increasingly used in medicines and agriculture. Most of the ceremonies and rituals remain incomplete without the use of CD.

Innumerable use of CD has taken it to institutes. Although it is found in manuscripts but scientific study of CD is the need of present. Transformed applications of CD are nice pick on scale of economy.

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