



A Research on Consumability of Cow Dung

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ABSTRACT

Cow Dung is the most important source of bio-fertilizer and is used for energy production in many developing countries. It is a very effective alternative to chemical fertilizers, which in the long-term increases productivity, maintains soil health and increases microbial populations. Cow dung and vermicompost increase soil organic matter, which improves water infiltration and water retention and increases cation exchange capacity. It is one of the renewable and sustainable energy sources through manure or biogas, which replaces the dependence on charcoal, firewood, firewood and fossil fuels, etc. In addition, proper and economical use of cow dung can also increase crop productivity. also reduces the probability of pathogenic bacterial and fungal diseases. Therefore, improper use of cow dung should be stopped and used as organic fertilizer to maintain a productive and sustainable agricultural system. Introduction: Cow dung is the main source of biofertilizer, but at the same time, cow urine, cow horn and cow body can be used to make effective biofertilizer. Animals can play an important role in energy production, either in a negative way, where livestock farming contributes to the loss of forests in large parts of the forest area, or in a positive way, for example by changing the energy of plants into useful work. or providing manure for fuel through manure cakes. or biogas to replace charcoal, firewood, firewood, etc. Most livestock production in mixed farming systems comes from animals fed on local resources such as pasture, crop residues, forage trees and shrubs. We practiced agriculture and farming according to the traditional, ancient system, when manure was, among other things, cow dung. In agriculture, there are various products made from cow dung and cow urine that can be used as fertilizer and pest control, respectively. These products are very popular and are used every day. Low soil fertility is one of the most important biophysical constraints to agroforestry crop production worldwide (Ajayi, 2007). Cow Dung is a very good source for maintaining soil productivity and increasing microbial populations. However, due to the increasing pressure of the population and the demand for food resources, there was a need to apply chemical fertilizers, pesticides and insecticides to the soil, which destroy the physico-chemical properties of the soil, including soil structure, porosity. and water retention, and disturb it. soil microbial population. Therefore, the improper use of cow dung should be stopped and used only on agricultural land instead of chemical fertilizers to maintain soil productivity and sustainability thus increasing the production capacity of food wealth (Bargali, 2004).

1. INTRODUCTION

Cow dung can be defined as the undigested residue of consumed food material being excreted by herbivorous bovine animal species. The Composition of cow dung is about 80% water and supports a matrix of undigested plant material that is rich in nutrients, micro-organisms, and their byproducts. Cow dung contains around twenty-four minerals like potassium, nitrogen, fewer quantities of Sulphur, calcium, magnesium, manganese, cobalt etc. Being a mixture of feces and urine in the ratio of 3:1, it mainly consists of lignin, cellulose and hemicelluloses. The green coloration of the cow dung is due to the presence of the bile pigment called biliverdin. More than sixty bacterial species, hundreds of species of protozoa and yeasts are present in the cow dung.

Generally, if any organism consumes any toxic substances by any chance, the same will be distributed throughout the body and the excretory products (in any form) will have the portion of the consumed toxins. The above concept is not applicable in the life of cow. The cow does not let or releases the toxins, in any of their products like urine, dung or milk, even in minute amounts and hence proving cow dung are pure, without toxins.

CULTURAL PRACTICES : According to a Hindu belief "Whatsoever sins or any diseases present in my body starting from the skin to the entire bones, Panchagavya (the five products that are obtained from cow, which include cow's urine, milk, ghee, curd and dung.) kills the diseases like the fire destroying the fuel while burning. The ancient scriptures affirm about the "suryaketu". It says that this suryaketu nerve has the capability to absorb dangerous radiations that holds the power to cleanse the air.

Some of the evidences have revealed that cow dung is considered as a reward of life cycle for an organism to die and reborn for the sake of growth once again. In Ayurveda, most of the medicinal preparations are cow dung patties. These cow dung patties play a significant role for the therapeutical property of Ayurvedic medicines. There is a technique in Ayurveda called "swedana". It is a technique used for the purification of ativisha. This purification method of ativisha uses the juice obtained from the cow which results in removing the impurities from the human body and detoxifies the system.

RELIGIOUS AND CULTURAL SIGNIFICANCE: Cow dung has been used in various cultural and religious practices throughout history. In Hinduism, it is believed to have purifying properties and is used in religious ceremonies and rituals. In some traditional medicine practices, cow dung is believed to have healing properties and is used as a remedy for various ailments.

NUTRITIONAL CONTENT: Cow dung is composed of mainly undigested plant material, along with some water, minerals, and microorganisms. It is not considered a nutritious food source for humans.

2. REVIEW OF LITERATURE

1. Indirect

1.1 Fuel-

1. According to a study conducted by the Indian Institute of Technology Delhi, cow dung can be a sustainable source of energy for rural households. The study found that cow dung can be used to produce biogas, which can be used for cooking and lighting. (Shikha Garg, 2016)
2. Another study conducted by the National Renewable Energy Laboratory (NREL) in the United States found that cow manure can be used to produce biogas and biofuels. The study showed that biogas produced from cow manure can be used to generate electricity, while biofuels can be used as a transportation fuel (R. Davis, 2016)
3. In Nepal, cow dung is widely used as a fuel source for cooking and heating. According to a report by the World Wildlife Fund, cow dung is the primary source of fuel for over 80% of households in rural Nepal.
4. In India, the government has launched a scheme called the Pradhan Mantri Ujjwala Yojana, which aims to provide free LPG connections to rural households. As part of this scheme, the government is also promoting the use of biogas plants that use cow dung as a fuel source.
5. A study published in the Journal of Environmental Science and Health found that exposure to cow dung dust can lead to respiratory problems such as bronchitis and asthma (Mariana Nor Shamsudin, 2018)
6. Another study published in the Journal of Environmental Quality found that cow manure used as fertilizer can lead to the contamination of groundwater with nitrates, which can be harmful to human health (Mark B. David, 2001)
7. Cow dung is also a significant source of methane emissions, which contribute to climate change. A report by the Food and Agriculture Organization of the United Nations found that livestock production, including the management of manure, is responsible for around 14.5% of global greenhouse gas emissions.
8. The use of cow dung as a fuel source can also lead to deforestation, as trees may be cut down to make way for grazing land for cattle. This can have negative impacts on biodiversity and contribute to soil erosion.

1.2 Fertilizers

1. A study shows that the use of cow dung and poultry manure as fertilizers resulted in higher maize yields compared to synthetic fertilizers in India. (Pranab Barua, 2019)
2. A study shows that the use of cow dung as a fertilizer improved soil fertility and maize growth in Ethiopia. (Gemechu Keneni, 2016)
3. A study shows that the use of cow dung as a fertilizer resulted in significant improvements in growth, yield, and quality of Amaranthus, a vegetable crop. (Feroz Ahmad Dar, 2017)
4. This study shows that the application of livestock manure, including cow dung, as fertilizer can result in the contamination of groundwater and surface water with pathogenic bacteria, heavy metals, and nutrients. This can pose health risks to humans and animals that consume the contaminated water or food grown with the contaminated water. However, it's worth noting that this study focused on the risks associated with the over-application of manure, and not specifically cow dung, as fertilizer. (Henock K, 2016)

2. Direct

2.1 Medicines

1. "Therapeutic value of cow urine and dung: A review" by Sushil Kumar Kansal and Sunil Kumar Kansal. (Journal of Scientific and Industrial Research, 2011). This review article explores the traditional and medicinal uses of cow urine and dung in India. It suggests that cow dung has therapeutic properties and can be used to treat various ailments such as skin diseases, fever, and diarrhea.
2. A study found that cow dung extracts had antimicrobial activity against foodborne pathogens such as E. coli and Salmonella. This suggests that cow dung could potentially be used as a natural alternative to synthetic antimicrobial agents. (Sudipta Sankar Das, 2017)
3. A study evaluated the antihyperglycemic activity of cow urine extract in diabetic rats and found that it significantly reduced blood glucose levels. The study suggests that cow urine extract could potentially be used as an alternative therapy for diabetes. (Ram Kumar Gupta, 2016)

2.1 Is cow dung edible?

There are some cultures that have traditional practices of using cow dung in food preparation, such as in some parts of India where cow dung is used to line the walls and floors of traditional clay ovens, called tandoors, to give the food a distinct flavor. It's important to note that this is a cultural practice and not based on scientific evidence, and direct consumption of cow dung is not recommended.

1. A case report describes a patient who developed liver abscesses after consuming cow dung for religious purposes. The study suggests that direct consumption of cow dung can lead to serious health risks, including liver abscesses, sepsis, and death. (V. Tandon, 2018)
2. A study found that cow dung can harbor drug-resistant bacteria that can pose a threat to human health. The researchers suggest that direct contact with cow dung can increase the risk of infections with drug-resistant bacteria. (M. A. Adeyemo, 2013)
3. A study describes several cases of infections associated with the use of cow dung in Ayurvedic medicine. The researchers suggest that direct consumption of cow dung or its use in medicine can increase the risk of infections. (N. R. Desai, 2017)

Cow dung can contain various types of bacteria, some of which can be beneficial while others can be harmful to human health. Some of the bacteria commonly found in cow dung include:

- *Escherichia coli* (E. coli): Some strains of E. coli can cause food poisoning and gastrointestinal illness in humans.
- *Salmonella*: A type of bacteria that can cause food poisoning and fever.
- *Listeria monocytogenes*: A type of bacteria that can cause serious infections, particularly in people with weakened immune systems.
- *Campylobacter Jejuni*: A type of bacteria that can cause diarrhea, abdominal pain, and fever.
- *Clostridium perfringens*: A type of bacteria that can cause food poisoning and gastrointestinal illness.
- *Staphylococcus aureus*: A type of bacteria that can cause skin infections and food poisoning.

It is important to note that the presence of these bacteria and pathogens in cow dung can vary depending on various factors such as the cow's diet, hygiene, and environment. Proper handling and hygiene measures should be taken when dealing with cow dung to reduce the risk of infection or illness

3. CONCLUSION

Cow dung has been used for centuries as a natural resource for various purposes, including as fuels, fertilizers, and medicines. While there are some benefits to using cow dung for these purposes, there are also potential harmful effects that must be considered. It is important to prioritize food safety and hygiene practices to prevent the spread of disease and protect public health.

A study by World Health Organization. Care of the Umbilical Cord, A review of the evidence. Geneva, has reported that cow dung is applied externally as an antiseptic on the stump of the cord immediately after the delivery and/or even some of the days after their delivery, the patients discharged from the health centers after the cord procedures were counselled to take proper precautions.

As a fuel source, cow dung can be used to produce biogas and biofuels, which can be a sustainable source of energy for rural households. This can reduce dependence on non-renewable energy sources and reduce carbon emissions. However, exposure to cow dung dust can lead to respiratory problems, such as bronchitis and asthma, which can pose a risk to human health.

As a fertilizer, cow dung can provide essential nutrients to crops and improve soil fertility. This can increase crop yields and reduce the need for chemical fertilizers, which can have harmful effects on the environment. However, cow manure used as fertilizer can lead to the contamination of groundwater with nitrates, which can be harmful to human health.

As a medicine, cow dung has been used in traditional practices for various purposes, such as treating skin diseases and boosting immunity. However, there is limited scientific evidence to support the use of cow dung as a medicine, and direct consumption of cow dung can lead to serious health risks, including infections and liver abscesses.

Finally, direct consumption of cow dung is not recommended, as it can contain harmful bacteria, parasites, and viruses that can cause diseases such as E. coli, Salmonella, and Cryptosporidium. While there are some cultural practices that involve the use of cow dung in food preparation, this is not based on scientific evidence and can pose a serious risk to human health.

In conclusion, while there are some benefits to using cow dung for various purposes, such as fuels, fertilizers, and medicines, it's important to consider the potential harmful effects as well. Proper handling and processing of cow dung can reduce the risk of exposure to harmful bacteria and other pathogens. It's important to consult with experts and follow appropriate safety guidelines when using cow dung for any purpose.

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