

STUDY ON “THE USE OF HUMAN FECES (WASTE) AS AN ORGANIC FERTILIZER”

Mr. Prajwal Meshram & Mr. Pravin Verma
Final Year BHMCT
Tuli College of Hotel Management

INTRODUCTION

Where the developed countries or developing countries facing the problems with human sludge in the highly or low populated countries of the globe, as the sewage sludge contains the human feces in it, and the human feces contains bacteria, small amount of metabolic waste product such as bilirubin, dead epithelial cells and pathogens. The human feces leads to disease such as Diarrhea and Constipation so it is must needed thing to do the appropriate management of the human waste for the betterment of the society. So the use of night soil (Human excrement collected at night from buckets, cesspools and privies and sometimes use as manure) is not an any new idea, it is a historically used euphemism for human excreta collected from cesspools, privies, and pit latrines by workers and it is transported out of town and sold on as fertilizer. But the unprocessed fecal sludge (modern term for night soil) is risky practice as it contain disease causing pathogens.

The risk of use of fecal sludge as a fertilizer can be reduced by the proper fecal management, eg. Via composting. And reduce of risk of human excreta by compost is possible.

As the technologies growing day by day we can think on the reusing of human feces by processing it to prepare the fertilizers from it, as it leads to the result of good management of the human waste, an organic fertilizer for the farmers and any gardener instead of chemical fertilizer.

These practices of producing the fertilizer from the human feces should be performed by the government of that country so the government can overcome the sewage sludge problems, and can also perform as a human welfare work. As it reusing the human feces for the fertilizers so the pollution would be in control and the farmers should get the organic fertilizers.

Aim: To study “the use of human feces (waste) as an organic fertilizer”

Objectives:

- 1) To study the impact of sewage sludge (human waste) on environment and human.
- 2) To recommend appropriate handling of human feces or sewage sludge.
- 3) To use the human waste for the betterment of the society.

Limitations:

- 1) Lack of literature
- 2) Lack of time

LITERATURE REVIEW:

What is human waste?

Human waste refers to the waste product of the human digestive system and the human metabolism, namely feces and urine.

What is night soil?

Night soil is euphemism for human feces collected at night from cesspools, privies, etc and sometimes used as a fertilizer .In other words we can say that a night soil is a untreated human excreta transported without water as a result of a sanitation ,and sold as fertilizer.

History of night soil

On a summer day in 1873, a cart stood on 6th Avenue in New York City filled to the brink with raw human waste. The cart was uncovered—its contents exposed to the air and to the passers-by who retched and gagged as they scurried away. Excrement dipped off the sides of the cart, and the sidewalks and gutters were smeared with the stuff. The stench was so strong that it could be smelled from more than a block away. It was another day in pre-sewer America

Before municipal sewer systems, excreta piled up in the privies of people’s homes—essentially a deep hole in the ground. But these poop storage units did not have unlimited capacity

When the privies were eventually filled, that's when the night soil men were called in. "Night soil" was the name euphemistically given to human waste because it was removed from privies under the cloak of darkness so that polite society would be spared from confronting its own feces as the men carted the crap away, leaving a trail of stench in their wake. Each year in cities across the country, thousands of carts brimming with excrement rattled through the night streets. This was an antiquated solution to a modern problem: America's cities were full of crap.

As the night soil euphemism is the process of collecting human excreta and use it as a fertilizer, but it may leads to the various soil transmitted helminths as it is not treated and processed so it contains various bacteria's, *Ascaris lumbricoides*, *Trichuris trichiura*, and hookworm spp., which are intestinal parasites that spread between people when sanitation is inadequate or when good hygiene is not practiced. People are infected when they accidentally ingest infective eggs or when their skin contacts infective larvae in contaminated soil.

So to reduce the risk of infection due to the contamination of soil ,or soil transmitted helminths .World Health Organization (WHO) guidelines recommend that farmers compost human excreta for six months prior to application in order to inactivate STH eggs and larvae, and thereby reduce spread between people.

Process of sewage sanitation and producing fertilizer

The sewage sludge is collected and brought to the treatment plant to treat the sludge to reduce the pathogens and bacteria, from there the processing start, bacteria digest the sludge (the solid waste before treatment, a process that accomplishes two things: it makes the sludge less biologically active (meaning it stinks less) and it reduces the amount of pathogens in the biosolid. Biosolids treated once are called Class B biosolids, and can be used with various restrictions, because while the pathogen levels are reduced by a single treatment, they're not completely gone. That requires a second treatment – often using high temperatures – and turns the biosolids into Class A biosolids, which have no detectable pathogens and can be used anywhere.

The sludge is mixed with high quantity of lime wich killed most of the pathogens.

RESEARCH METHODOLOGY:

Descriptive

Analytic

SUMMARY AND CONCLUSION:

It is clear that the use of the human feces as a fertilizer can be done if the sludge is treated and processed to reduce the pathogens and bacteria. As the untreated human feces content hazardous bacteria and it may leads to the soil transmitted helminths if it is spread directly on to soil .So the human feces should needs to be treated before using it as a fertilizer .

SUGGESTION AND RECOMMENDATIONS:

To reduce the treatment and production cost of the fertilizers from the human waste needs to use such toilets which will need a less water. So the required time for evaporation and separation of water would be minimized

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