

Problems for Biodegradable Waste Management in Water Pollution

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DESCRIPTION

Biodegradable waste is any organic matter that can be decomposed by microorganisms and other living things into simpler substances, such as carbon dioxide, water, methane, compost and humus. Biodegradable waste includes kitchen waste, ash, soil, dung, plant matter and some inorganic materials that can be degraded by bacteria. Biodegradable waste can be a source of pollution when it is not properly managed or disposed of [1,2]. When biodegradable waste enters water bodies, such as rivers, lakes and oceans, it can cause several problems for the aquatic environment and human health. Biodegradable waste in water provides food for microorganisms that consume oxygen during the decomposition process. This can lower the dissolved oxygen level in the water, which can affect the survival of aquatic animals and plants. Oxygen depletion can also lead to the production of toxic gases, such as hydrogen sulfide and ammonia, by anaerobic bacteria that thrive in low-oxygen conditions [3-6].

Biodegradable waste in water can also release nutrients, such as nitrogen and phosphorus that can stimulate the growth of algae and other aquatic plants. This can result in algal blooms that cover the surface of the water and block sunlight from reaching deeper layers. Algal blooms can also reduce the oxygen level in the water when they die and decompose. Eutrophication can cause ecological imbalance, biodiversity loss and aesthetic problems in water bodies. Biodegradable waste in water can also contain pathogens, such as bacteria, viruses and parasites that can cause diseases in humans and animals [7]. Pathogens can enter water bodies through sewage, animal waste, agricultural runoff and industrial effluents. Pathogens can contaminate drinking water sources and cause infections, such as diarrhea, cholera, typhoid and dysentery. Pathogens can also affect the health of aquatic organisms and cause fish kills and shellfish poisoning.

Waste reduction is one of the best ways to prevent biodegradable waste from polluting water bodies is to reduce the amount of waste generated in the first place [8]. This can be done by adopting practices such as composting, recycling, reusing and

donating unwanted items. Waste reduction can also save money, energy and natural resources. Waste separation is another way to prevent biodegradable waste from polluting water bodies is to separate it from the rest of the waste stream at the point of collection or disposal. This can allow biodegradable waste to be treated differently from non-biodegradable waste and avoid mixing with harmful substances [9]. Waste separation can also facilitate composting or anaerobic digestion of biodegradable waste to produce useful products such as fertilizer and biogas. A third way to prevent biodegradable waste from polluting water bodies is to treat it before discharging it into the environment. This can be done by using physical, chemical or biological methods to remove or reduce the pollutants in biodegradable waste. For example, wastewater treatment plants use activated sludge models to characterize and remove biodegradable organic matter from wastewater by aerobic or anaerobic processes.

Waste monitoring is used to prevent biodegradable waste from polluting water bodies is to monitor the quantity and quality of biodegradable waste that is generated and discharged into the environment. This can be done by using methods such as sampling, testing, measuring and reporting to collect data on biodegradable waste characteristics and impacts. Waste monitoring can help identify sources of pollution, evaluate treatment efficiency, assess environmental compliance and implement corrective actions [10]. Waste monitoring can also provide information for decision making and policy making on biodegradable waste management.

CONCLUSION

Biodegradable waste is any organic matter that can be decomposed by microorganisms and other living things into simpler substances. Biodegradable waste can be a source of pollution when it enters water bodies, where it can cause oxygen depletion, eutrophication and pathogens. To prevent biodegradable waste from polluting water bodies, solutions such as waste reduction, waste separation and waste treatment should be implemented. Wastewater treatment plants can also use advanced technologies such as membrane filtration, ultraviolet

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disinfection and ozonation to further improve the quality of treated wastewater.

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