OPEN ACCESS Freely available online

ISSN: 2157-7463
Journal of Petroleum & Environmental Biotechnology

Short Communication

Various Technologies of Waste Management on Environment

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DESCRIPTION

Environmental biotechnology is biotechnology that is used to understand the environment and is applied to it. Environmental biotechnology may also suggest that one tries to control biological processes for profit. Environmental biotechnology is described as the International Society for Environmental Biotechnology, "(green manufacturing technologies and sustainable development)" defines environmental biotechnology as "the development, use, and regulation of biological systems for remediation of contaminated environments (land, air, and water), and for environmentally friendly processes." The simplest definition of environmental biotechnology is the best use of nature, in the form of plants, animals, bacteria, fungi, and algae, to engage in a cycle of profitable activities that produces food, nutrients, and renewable energy, with the trash from each process serving as the feedstock for the next. Solid, liquid, and gaseous wastes can all be transformed, either through recycling to make new products or by purification to make an end product that is less harmful to the environment. In this approach, environmental biotechnology can considerably support sustainable development [1]. Environmental biotechnology is one of the most dynamically evolving and practically useful scientific fields nowadays. Research into the genetics, biochemistry, and physiology of exploitable microbes is rapidly producing technologies for reversing and preventing further environmental deterioration.

Technologies of waste management

Bioremediation: The globe would be awash in industrial waste and toxins if environmental biotechnology didn't exist. These are the factors that are primarily responsible for climate change and global warming. Technology is currently being used by scientists to clean up contaminants for a healthy environment. Microorganisms detoxify contaminants in water, sediments, or soil during bioremediation [2]. Scientists employ bio-restoration, bio-treatment, and bio-reclamation procedures to accomplish the purifying objective.

Microbial Enhanced Oil Recovery (MEOR): Thanks to technological development, researchers may now use many molecular strategies to promote hydrocarbon consumption in oil wells. This makes the oil purer, which lowers processing costs for more profitability [3]. Profiling is made possible by genomic and proteomic isolations using techniques like fingerprinting and sequencing. In order to engage in inventive exploitation, scientists are better able to comprehend each community and species. In Microbial Enhanced Oil Recovery (MEOR), researchers grow bacteria that consume hydrocarbons to clean the soil by removing pollutants from deep-sea wells. Environmental bioremediation is encouraged by this. Even with the dwindling oilfields, MEOR enables investors to locate new oil wells.

Industrial wastewater treatment: It discusses the procedures used to treat wastewater produced as an unwanted by product by various industries. Industrial wastewater (or effluent) may be recycled, released into sanitary sewers or surface waters, or both after treatment. Sewage treatment facilities can treat the wastewater produced by some industrial operations [4]. The majority of industrial processes, including chemical and petrochemical plants, refineries of petroleum products, and petroleum products, have their own specialized facilities to treat their wastewaters so that the levels of pollutants in the treated wastewater are within the limits allowed for discharge into sewers, rivers, lakes, or oceans.

Phytoremediation: Phytoremediation technologies make use of living plants to purify contaminated soil, air, and water. It is described as "the employment of green plants, related microorganisms, appropriate soil amendments, and agronomic approaches to contain, remove, or render harmful environmental toxins harmless." The word is a combination of the Greek words phyto (plant) and remedium (remedy) (restoring balance). Despite being appealing due to its low cost, phytoremediation hasn't been shown to significantly address any environmental issues, at least not to the point where contaminated space has been returned. Phytoremediation is the process of reducing pollutant concentrations or their harmful

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Received: 04-Oct-2022, Manuscript No. JPEB-22-18697; **Editor assigned:** 07-Oct-2022, Pre QC No. JPEB-22-18697 (PQ); **Reviewed:** 21-Oct-2022, QC No. JPEB-22-18697; **Revised:** 28-Oct -2022, Manuscript No. JPEB-22-18697 (R); **Published:** 04-Nov-2022, DOI: 10.4172/ 2157-7463.22.13.489.

Citation: Rayhill L (2022) Various Technologies of Waste Management on Environment. J Pet Environ Bioethanol. 13:489.

effects on the environment by using plants and associated soil microbes. Phytoremediation is a well-accepted practical technique for recovering the environment.

Protecting biodiversity is greatly aided by environmental biotechnology (plants, animals, and human beings). The need for a safer planet has spurred the development of numerous technologies to boost productivity and advance sustainability. Environmental biotechnology is currently receiving significant investment from numerous government organizations and public and commercial organizations. As a result, its future depends on the availability of chances for improvement to:

- Reduce the release of industrial waste,
- clean up contaminated environments, and
- Stop pollution.

Environmental biotechnology has only partially been applied to the treatment of wastewater and bioremediation. As more research resources become accessible, the industry is expected to grow quickly in the future. Globally, numerous governments have established rules that simplify the process of acquiring patents for dependable and effective environmental biotechnology advances [5].

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