

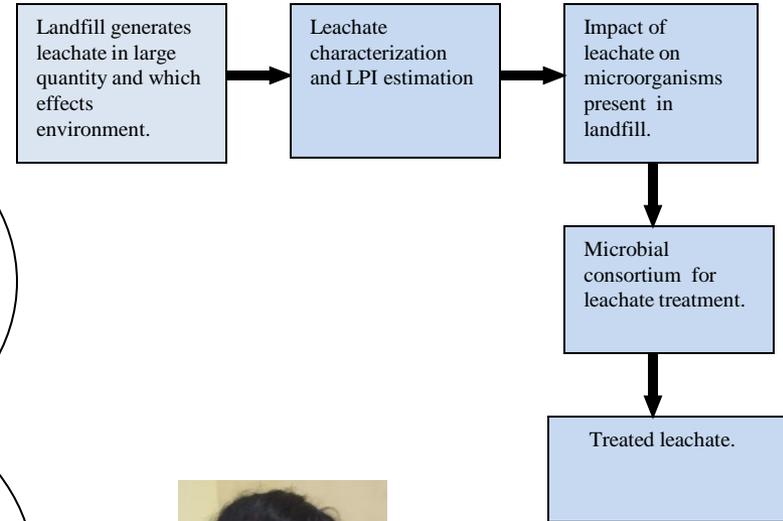
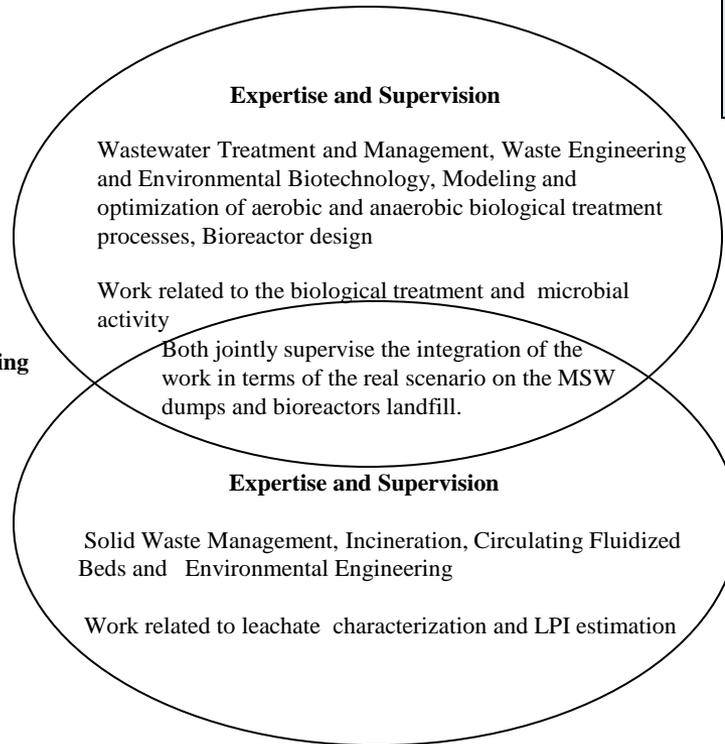
IMPACT OF LEACHATE ON THE MICROBIAL POPULATION OF A MUNICIPAL SOLID WASTE DUMP



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India is one of the fastest-growing country in the world due to rapid urbanization and it is also one of the most polluted. Management of solid waste has become a major concern in most of the Indian cities. In the absence of effective solid management system, all biodegradable and non-biodegradable waste are dumped. However, the Municipal Solid Waste (MSW) generated in almost all Indian towns/cities end up in 'land-fills', which are more appropriately called 'waste dumps'. These waste dumps are non-engineered and they do not have any proper liner system to prevent/control influx of water into it and these results in the production of leachates. Due to the presences of hazardous substance such as heavy metals, organic compounds etc in the leachate, they pose a major threat if they enter into natural water bodies. They often contain compounds which are toxic, mutagenic and/or carcinogenic. So before releasing it to the environment, a proper management and treatment system should be implanted. Leachates are graded using the leachate pollution index (LPI). Because of the fact that mixed MSW has been put into it, there is also a considerable amount of biodegradable solids which provide favorable conditions for the the growth and proliferation of microorganisms. The activities of the microbial groups are affected by the leachate constituents, but is largely an unknown entity. However, in an actual dump-site, the quality of the leachate (quantified through LPI) impacts the biological activity and thereby the overall activity going on inside the dump. A proper understanding of the effect of the leachate components on the microbes and the ability of the microbes to survive and degrade the leachate components play a major role in deciding the most scientific way to manage these dumps. Further, these information will be useful in the design and operation of the bioreactor landfills, which is a new concept in landfilling. The objective of this project is to elucidate these information using lab as well as site-level experiments.