EDITORIAL

Wastewater treatment by using trickling filter

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Due to the rising disparity between freshwater supply and use, water supplies are becoming increasingly limited across the world, making access to clean and healthy water one of our global society's main challenges. The following factors are driving a rise in water demand:

- Population rise and migration to drought-prone areas.
- Climate change is causing weather conditions to shift in urban areas.
- Rapid industrial development and increasing water use per capita.

In the other hand, the presence of a vast number of contaminants and anthropogenic chemicals that penetrate urban and rural water sources endangers water quality. Wastewater discharges from urban and industrial treatment facilities have been reported as a significant cause of marine waste all over the world [1].

- The dumping of untreated wastewater into bodies of water without any treatment can result in a variety of environmental concerns.
- Untreated wastewater normally contains a high concentration of pathogenic (disease-causing) microorganisms and poisonous chemicals that can reside in the human gastrointestinal tract, creating a health risk.
- Untreated wastewater with a high volume of organic matter can absorb dissolved oxygen to meet the biochemical oxygen requirement (BOD) of the wastewater, depleting the dissolved oxygen needed by aquatic life in the water supply.

In this developing economics, wastewater treatment is the biggest challenge for the protection of water, public health and also for environment [2].

Trickling filter is used for the treatment of wastewater. The media in trickling filters has much more void space and porosity, allowing for higher hydraulic loading. A heavier biological growth on the media is aided by the higher loading rate and increased void length. This development will ‘slough' off on a regular basis and fly with the effluent to a clarifier, where it will settle out. A trickling filter is an aerobic biological treatment device that is commonly used. It is a down flow packed bed type of reactor, also known as a biofilter [3]. It is made up of a fixed bed made of various inert materials. Biofilm forms on the inert bed's surface [4]. The porous bed may be made out of a variety of inexpensive and porous materials such as rocks, mud, coke, mud, slag, pumice stone, polyurethane foam, peat moss, ceramic, or plastic paper [5]. Wastewater enters by a revolving arm distributor or static nozzles fed by a variable head feed source from the top of the fixed bed. The waste is degraded by a microbial biofilm that forms on the surface of the inert support. Active or passive aeration using a blower or fan (forced aeration) or normal convection of air due to the temperature differential between the water and atmospheric air is used to maintain an aerobic state [6].

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