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Cilioprotists as biological indicators for estimating the efficiency of using gravel bed hydroponics system in domestic wastewater treatment

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Abstract

Interest has increased over the last several years in using different methods for treating sewage. The rapid population growth in developing countries (Egypt, for example, with a population of more than 87 millions) has created significant sewage disposal problems. There is therefore a growing need for sewage treatment solutions with low energy requirements and using indigenous materials and skills. Gravel Bed Hydroponics (GBH) as a constructed wetland system for sewage treatment has been proved effective for sewage treatment in several Egyptian villages. The system provided an excellent environment for a wide range of species of ciliates (23 species) and these organisms were potentially very useful as biological indicators for various saprobic conditions. Moreover, the ciliates provided excellent means for estimating the efficiency of the system for sewage purification. Results affirmed the ability of this system to produce high quality effluent with sufficient microbial reduction to enable the production of irrigation quality water

Biography

Hamed El-Serehy is a Professor of Biodiversity in aquatic ecosystems at Zoology Department, College of Science, King Saud University, Saudi Arabia and a Professor of Oceanography at the University of Port Said, Egypt. At present he is full professor at Distinguished Scientist Fellowship Program at King Saud University. He holds a Ph.D. in Marine Biology from Southampton University and was a Research Fellow in molecular biology at Copenhagen University, Denmark. Prof. El-Serehy has an extensive knowledge of the wetlands of North Africa and the Middle East. As a Biodiversity & Zoogeography Researcher, he has published 50 scientific publications devoted to the taxonomy and ecology of a wide range of taxa (zooplankton, meiofaunas, brachyurans, sponges, molluscs and tunicates) and to wetland conservation, and aquatic ecosystem health and management. Over the last 20 years, his research, focused on the biodiversity and conservation of wetlands with an interest in biological associations, functional ecology, and global changes, has led him to study wetlands across North Africa and the Middle East and serve as consultant/member to several Conservation bodies (MSEA-EEAA, Egypt, Aquatic ecosystem health and management Society, Canada).

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