

Molecular genetics approaches for understanding operational problems in wastewater treatment plants

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Water contamination is now a major problem in the global context as a consequence of industrialization and population growth. Therefore Wastewater treatment has gained increased importance worldwide due to increasing demand on fresh clean water supplies. Biological treatment is one of the most important biotechnological processes which is used worldwide to treat municipal and industrial sewage. Operational problems such as bulking and foaming occurs are the main biological problems in activated sludge wastewater treatment plants, which is caused by the excessive growth of filamentous bacteria. Filamentous bulking and foaming can be controlled by specific strategies. These strategies are associated with the filamentous proliferation without though addressing the actual cause of the filamentous growth. Therefore, analyzing and identifying the causative population in a short time is essential to control and solve the problems. So Tools for *in situ* identification including molecular techniques such as fluorescence *in situ* hybridization (FISH) using ribosomal RNA targeted oligonucleotide fluorescently labeled probes, and quantitative real-time PCR (QRT-PCR) are needed. These molecular biological methods avoid the limitation of cultivation and thus reflect the microbes in their environmental community more accurately especially those that are hard to grow.

Biography

Abd El-Latif Hesham, graduated and got his M.Sc. from Genetics department, Assiut University, Egypt and his Ph.D. degree from Chinese academy of Sciences in Microbial Genetics and Environmental Meta-Genome Biotechnology. He did his postdoctoral studies from CAS-TWAS. He has published about 25 papers in reputed journals and serving as an editor in chief, editorial board member and reviewer of international reputed journals.

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