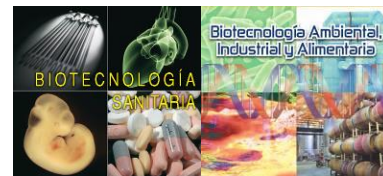


Talk

Effect of mass loading on the generation of eps in a tributary enriched with glucose



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ABSTRACT

Motivation: This essay establishes the relationship of microorganisms in the development of wastewater treatment in WWTP systems, counting on the fundamental role of extracellular polymeric substances (EPSs), composed of high molecular weight natural polymers such as exopolysaccharides, proteins, DNA, lipids, among others. These EPSs, secreted by the microorganisms themselves, constitute the structure we know as bacterial biofilms. Filamentous bacteria are a fundamental part of the formation of the floc macrostructure (Jenkins, 1993), however, their proliferation can destabilize the purification process. In this way, we will relate this concept through the addition of different concentrations of glucose, in pilot plant systems and we will observe its repercussion on the mass loads of active sludge.

Methods: In this section we can distinguish two points that, although they are closely related, their methodologies are clearly differentiated. On the one hand, there are physicochemical analyzes of the properties of water (SS, COD, NH₄) and active sludge (SS and MLSS), by means of standardized methods (APHA, AWWA, WPCF, 1992). On the other hand, the study of the quality of active sludge is at 3 scales: (1) Macro- and microscopic evaluation, (2) Evaluation of filamentous microorganisms (EMASESA, 1997) (Arnáiz et al, 1999) and (3) Evaluation of the microfauna by methods of Madoni Index (Madoni, 1994) and Shanon Index (Margalef, 1981). All this is included in a final report that establishes a clear conclusion about the existing bioindicator organisms, as well as the quality of the sludge and the predictable quality of the treated water.

Results: We found significant relationships between the observed physicochemical parameters of the SS of the mixed liquor and the performance of the COD. Also agree parameters such as the floccular size observed to the microscope in relation to the CM studied (Garrido et al, 1988). On the other hand, these relationships become more complex in the microbiological community of the mud, where the filamentous bacteria are favored against the microfauna more quickly in those with a larger mass load.

Conclusions: Filamentous bacteria are favorable under conditions of alteration of substrate and oxygen, probably because of their surface density for their uptake. Therefore, an excessive COD input in the system can cause a change in the micro-community of the active sludge and therefore in the purification system.

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