



Using laser granulometer to algae dynamic growth analysis in biological treated sewage

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ABSTRACT

Often within literature can be found descriptions of research using the technique of laser diffraction to characterize the composition of sewage and water, measurements of the number and volume of particle size distribution and fractal dimension of activated sludge flocs. This study focuses on the potential of the application of laser granulometric technique, which has not been widely described in other studies. It concerns the granulometric composition of sewage in which algae grow and the influence that algae has on size, properties and the stability of particles in suspension. The measurements include particle size distribution and the calculation of fractal dimension and the mean diameters of particles. In the study, an attempt was made to verify the similarity of the mechanism in which algae colonies are created to crystallization process. For this purpose, data from granulometric analysis were converted using the modified Avrami equation. The results presented indicate that the analysis of the particle size distribution of the suspension by laser diffraction generates reliable and reproducible results, and can also be successfully used to track the growth dynamics of the microbial complexes which form the suspension in a liquid medium such as sewage or water.

Keywords: Laser granulometer; Algal biomass; Particle size distribution; Fractal dimension; Mean diameter

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