



“Gheorghe Asachi” Technical University of Iasi, Romania



DENITRIFYING ACTIVITY OF ACTIVATED SLUDGE IN SUSPENSION AND IN BIOFILM

Susana Cortez, Pilar Teixeira, Rosário Oliveira*, Manuel Mota

IBB – Institute for Biotechnology and Bioengineering, Centre of Biological Engineering, University of Minho, Campus de Gualtar, 4710–057 Braga, Portugal

Abstract

A method based on measuring substrate depletion rate was developed to evaluate the denitrifying activity of activated sludge in suspension and in biofilm form in anoxic serum flasks. The adapted activated sludge inoculum was grown as biofilm in an anoxic rotating biological contactor (RBC). Acetate was used as external carbon source to obtain a carbon to nitrogen ratio (C/N) of 2. The results showed that the specific activity of cells in biofilm form was higher than in planktonic form. The methodology developed can yield useful predictive information and, if used in conjunction with other monitoring devices, could help in maintaining an overall satisfactory denitrifying performance, which is very important in wastewater treatment systems.

Key words: Activated sludge, anoxic rotating biological contactor, biofilm, denitrifying activity, planktonic cells

* Author to whom all correspondence should be addressed: e-mail: roliveira@deb.uminho, phone: +351 253 604409; fax: +351 253 678986.