QUATIFICATION OF BIOMASS ATTACHED TO CARRIERS IN A MBBR-PHOREDOX REACTOR: ULTRASOUND EXTRACTION

Alexandre Amaro
Beatriz Rocha
Taís Almeida
Marcia Marques
Department of Sanitary and Environmental Engineering
Rio de Janeiro State University-UERJ, Brazil

ABSTRACT

One of the indicators for monitoring a Moving Bed Biofilm Reactor (MBBRs) is the biofilm formation adhered to the carriers or media, particularly in the aerated tanks. For that, a suitable method for extraction of the adhered biomass from the carriers is required. Different methods have been used so far, but there is a lack of standardization among the methods used. With the objective of establishing a cost-effective method for extraction of biomass adhered to carriers as biofilm in a Moving Bed Biofilm Reactor (MBBR) for urban wastewater treatment, a two-phase investigation was carried out using Design of Experiments (DoE) for process optimization. During Phase I, mechanical agitation versus ultrasound, different volumes and exposure times were tested. Since ultrasound showed better results, in Phase II, only ultrasound was associated to manual agitation in another run of experiments based on DoE. The best combination of ultrasound with manual agitation and time of exposure to ultrasound was defined. The best combination of variable has now to be applied repeatedly for the establishment of a protocol for extraction of biomass from carriers.

KEYWORDS: Wastewater treatment; Biological Processes; Biofilm

ISBN: 978-91-88898-28-9