THE EFFECT OF SOME TECHNOLOGICAL PARAMETERS ON THE DIVERSITY OF IMMOBILIZED MICROORGANISMS

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Abstract: The effect of hydraulic retention time (HRT) and internal circulation capacity (q_C) on microbial diversity of immobilized biomass in the porous ceramic carrier was determined. The bioreactor, operating at HRT of 70 and 60 min, and with q_C in the range of 20–70 $dm^3 \cdot h^{-1}$, was employed for the removal of organic compounds from municipal wastewater. Microbial diversity was estimated on the basis of RISA patterns using the Shannon-Wiener index (H'). At HRT of 70 min, H' lowered from 2.48 ± 0.14 to 2.13 ± 0.23 as q_C was increased from 20 to 60 $dm^3 \cdot h^{-1}$. At HRT of 60 min, an increase in q_C from 40 to 70 $dm^3 \cdot h^{-1}$ resulted in H' drop from 2.41 ± 0.13 to 2.08 ± 0.19. At every HRT the highest efficiency of removal of organic compounds was obtained at the lowest value of q_C and the highest biomass diversity.