

Kowalska, M., Dudziak, M., Bohdziewicz, J. Removal of Haloacetic Acids by the Integrated Process Biodegradation–Ultrafiltration Involving Enzymatic Capillary Membranes. *Ochrona Srodowiska* 2011, Vol. 33, No. 4, pp. 49–51.

Abstract: Five haloacetic acids (HAA) of choice were removed from a model solution in the course of the integrated process biodegradation–ultrafiltration. Experiments were performed in a reactor containing capillary ultrafiltration membranes with HAA-degrading enzymes immobilized on their surfaces. The enzymes had been isolated from bacterial strains of the genera *Acinetobacter*, *Arthrobacter*, *Pseudomonas* and *Bacillus* separated from active sludge adapted to HAA degradation. The model HAA solution was a mixture composed of MCAA, DCAA, TCAA, MBAA and DBAA (each in the amount of 1 g/m³). Based on the results obtained, the most advantageous operating parameters of the process were determined. Optimal transmembrane pressure amounted to 0.075 MPa, linear flow velocity of the model solution being 0.75 m/s. Under such conditions, complete removal of monohaloacetic and monobromoacetic acids was achieved after 3 hours, and that of the other acids after 4 hours of the process. The time of contact can be reduced by increasing the active surface area of the membranes, but this issue will be dealt with in a future study.

Keywords: Haloacetic acids, biodegradation, enzymatic ultrafiltration membrane.