

Performance of Microbial Desalination Cell in High Organic Load

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Microbial desalination cell presents a novel concept for wastewater treatment, salt removal and bioelectricity generation in a single system. In this study, the effect of organic load on salt removal in air cathode up-flow microbial desalination cell was investigated in batch mode. Four different organic concentrations were fed to the anodic chamber of microbial desalination cell. The initial chemical oxygen demand in the anodic chamber were 2.02, 4.05, 6.07 and 8.10g/L. A real seawater was used in the desalination chamber of UMDC. The obtained results showed that the organic load 3 (initial COD of 6.07 g/L) produced a maximum percentage of salt removal compared to other organic loads tested. The maximum power density produced (1.77 W/m²), the maximum percentage COD removal (95%) occurred with 48 % salt removal in the microbial desalination cell using the organic load of 6.10mg/L. The obtained results show that microbial desalination cell is a unique system that provides wastewater treatment and salt removal in a single system. Organic load is a very important factor for the operation of UMDC, there is an optimum value that achieve the best performance of the UMDC system.

Biography:

Dr Surajbhan Sevda is a technical officer- Department of bioscience and bioengineering at the Indian Institute of Technology Guwahati, India. He has a doctorate in Biochemical engineering and a Master of Technology in Fermentation technology from IIT Delhi and ICT Mumbai respectively. He has a engineering degree in Biotechnology engineering. His main research area bioelectrochemical system, biological wastewater treatment, Bioenergy from biomass. He has published 20 International research paper and presented his work in 22 international conferences. His other expertise includes mathematical modeling, writing and executing scientific projects. He also guided 2 master students and 11 undergraduate students for their projects.