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Abstract

A novel microbial fuel cell (MFC) was developed to enhance simultaneous nitrification and denitrification (SND) by employing electrons from the anode. The cathode chamber of the reactor consisted of a membrane aerated biofilm reactor (MABR) which was made of an electroconductivity aerated membrane. The maximum power density of 4.20 ± 0.12 W m^{-3} was obtained at a current density of 4.10 ± 0.11 A m^{-2} (external resistance = 10 Ω). Compared with an open-circuit system, the removal rates of NH_4^+-N and TN were improved by 9.48 ± 0.33% and 19.80 ± 0.84%,