Sea water desalination using debaryomyces hansenii with microbial desalination cell technology

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Abstrak

Desalination is a way to process sea water with a high salinity level, which makes water non-consumable. Various desalination technologies, such as distillation, vapor compression, and reverse osmosis, have been developed but require energy and large financial investments. Microbial desalination cell (MDC) is a modified desalination technology of a microbial fuel cell that can remove salt content in water with the help of microorganisms through organic matter degradation. This research used Debaryomyces hansenii to degrade organic material in the anode chamber. The ratio of the volume chamber, the volume ratio of culture:substrate, and the volume progression of the culture and substrate were evaluated in terms of salt removal and electricity generation. This research shows that MDC using a 9:1:9 ratio of the volume chamber, a culture:substrate ratio of 2:3 (v/v), and a volume progression of the culture and substrate of 1.5 times gave the best desalination performance: a salt removal level of 55.03%