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Abstract:

Five strains algae (*Golenkinia* sp. SDEC-16, *Chlorella vulgaris*, S. *capricormutum, Scenedesmus* SDEC-8 and *Scenedesmus* SDEC-13) were screened as an effective way to promote recover electricity from MFC for kitchen waste anaerobically digested effluent (KWADE) treatment. The highest OCV, power density, biomass concentration and total lipid content were obtained with *Golenkinia* sp. SDEC-16 as the co-inoculum, which were 170 mV, 6255 mW m^{-3}, 325 mg L^{-1} and 38%, respectively. Characteristics of the organics in KWADE were analyzed, and the result showed that the hydrophilic and acidic fractions were more readily degraded, compared to the neutral fractions during the operation. Maximum COD and TN removal efficiency were 43.59% and 37.39% when inoculated with *Golenkinia* sp. SDEC-16, which were roughly 3.22 and 3.04 times higher than that of *S. capricormutum*. This study

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