

### Performance of microbial fuel cell with volatile fatty acids from real food wastes

최진달래, 한종인, 장호남\*

KAIST

(hnchang@kaist.edu\*)

Food wastes have started to be considered as valuable resources for biofuels and biochemicals. This study demonstrated that they could also be used as a good feedstock for direct production of electricity in microbial fuel cells (MFCs). MFC operations with volatile fatty acids (VFAs), which are fermented product of food wastes, produced a maximum power density of 240 mW/m<sup>2</sup> with voltage of 533 mV. Short-chain VFAs such as acetate found to be degraded more rapidly and thus supported higher power generation than longer ones. In general, the co-existence of different VFAs slowed down the removal of each VFA, indicating that anodic microbes competed for different substrates. 16S rRNA gene analysis using PCR-DGGE indicated that the MFC operation with VFAs enriched unique microbial species.