

In-situ power generation and nutrients recovery from wasted sludge

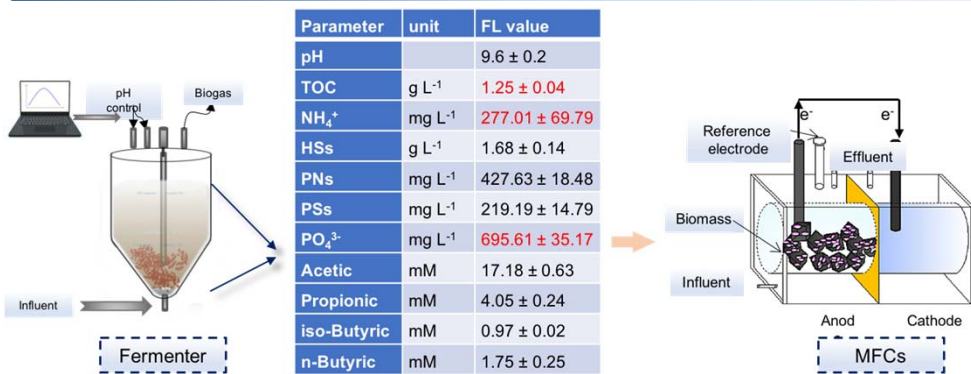
Objective

To develop and demonstrate a new approach to recover nutrients and generate power from wasted sludge in microbial fuel cell (MFCs)

Research members

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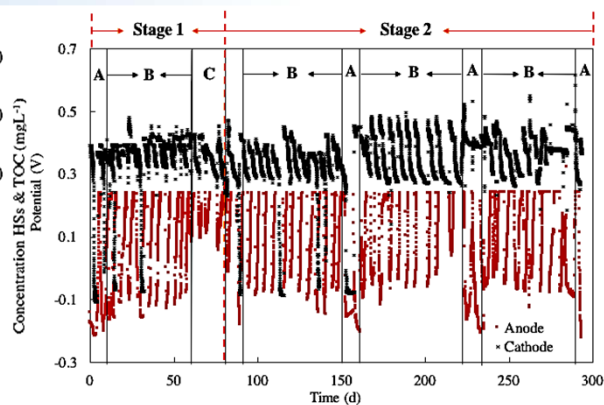
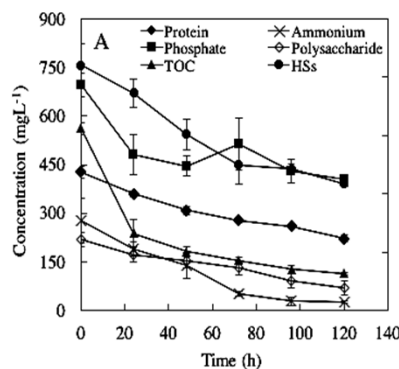
Graphic abstract



- Primary and secondary sludge was fermented under thermal and alkaline conditions for 7 days to obtain fermented liquor (FL)
- FL was used as feed for the anode in MFC for power generation and nutrients recovery

Results

- More than 50% of protein, polysaccharide and humic substance were converted.
- 80% of ammonium was found to be concentrated in the cathode.
- 60% of phosphate was removed and stored in the biomass in the form of poly-P
- Maximum voltage (0.477 V) was obtained during operation



Conclusions

MFC was successfully implemented for nutrients recovery and power generation from wasted sludge. More than 50% of organic carbon were used for power generation. Ammonium and phosphate were concentrated and stored respectively for further recovery.