Supplementary information

Improved power output by polyvinyl alcohol in the anode of microbial fuel cell

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Figure captions

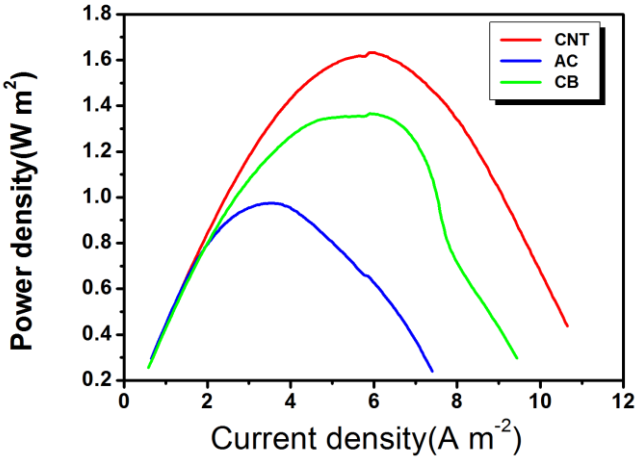


Fig. S1. Power outputs of cube MFCs through loading with different anode materials (AC: activated carbon, CB: carbon black).

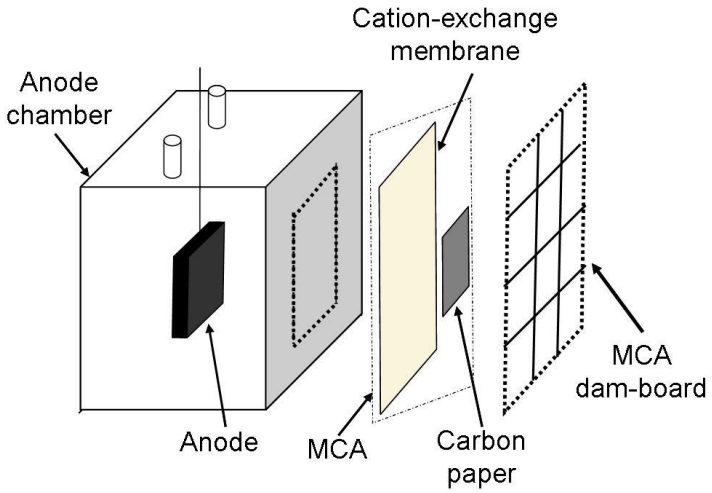


Fig. S2. Schematic configuration of single-cube microbial fuel cell.

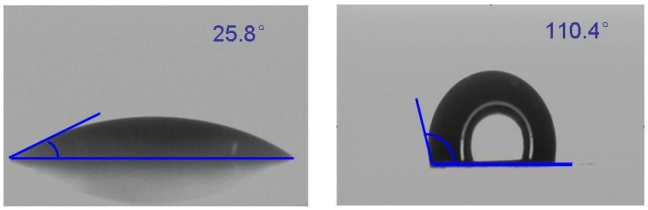


Fig. S3. Contact angles of water droplets on binder films

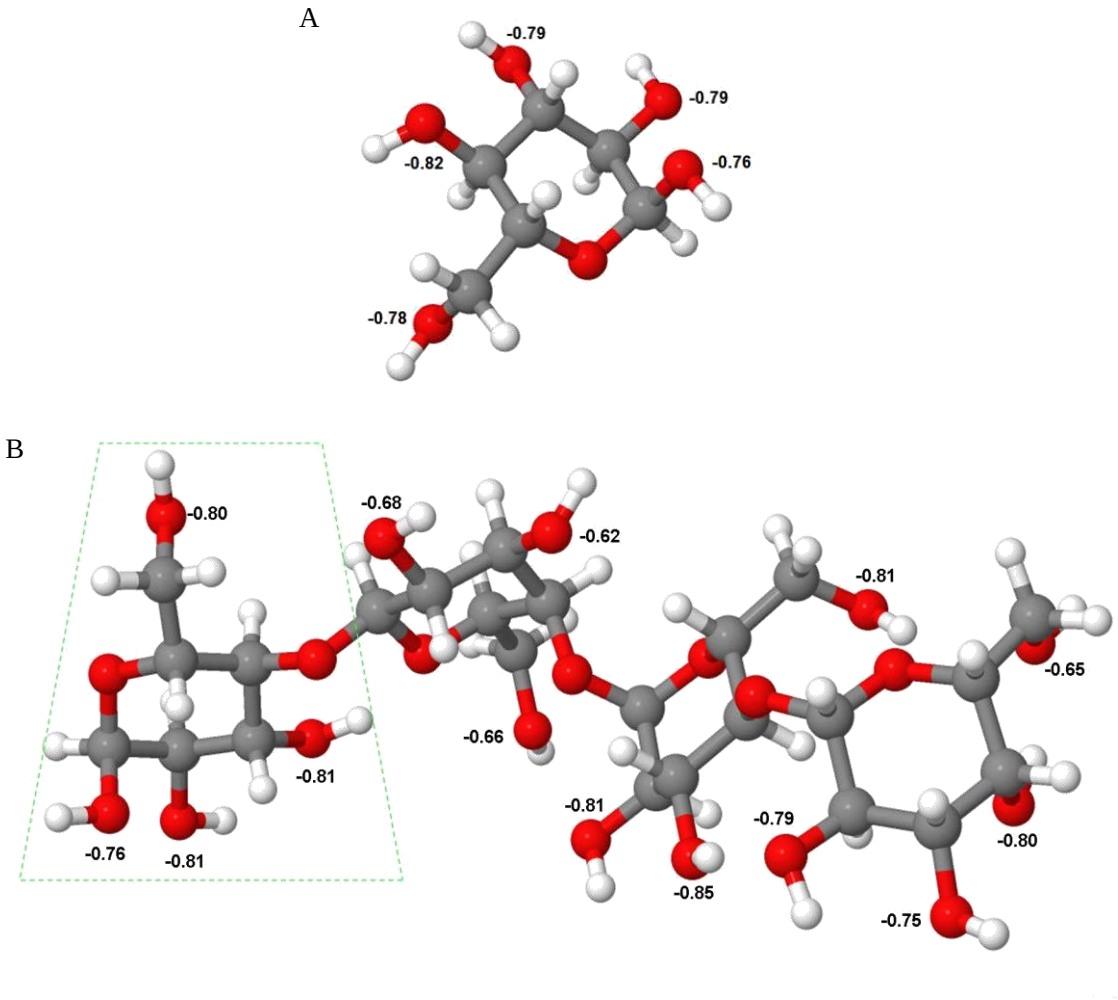


Fig. S4. Optimized structures and charge (q/e) on oxygen atoms of glucose (A) and O-polysaccharide (B) fit by CHELPG method

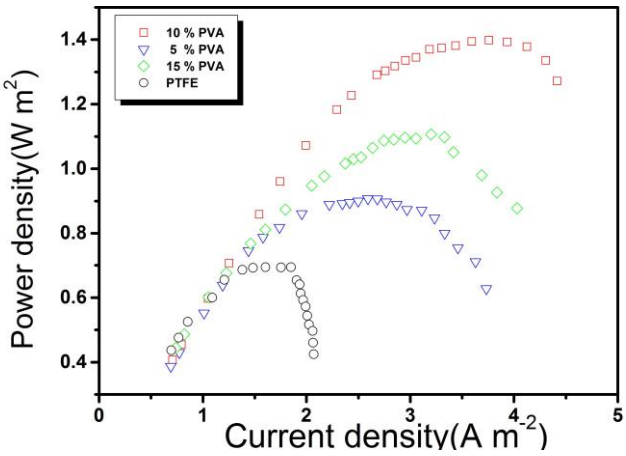


Fig. S5. Power outputs of cube MFCs through loading with different output resistances.

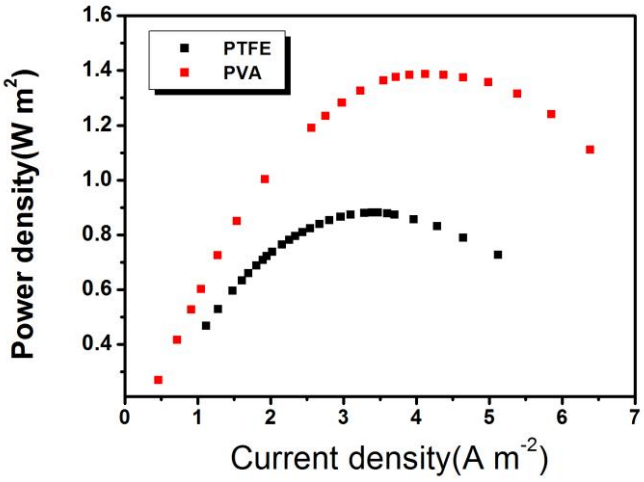
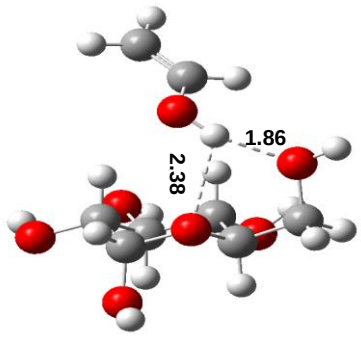
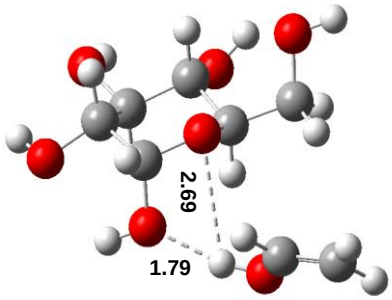
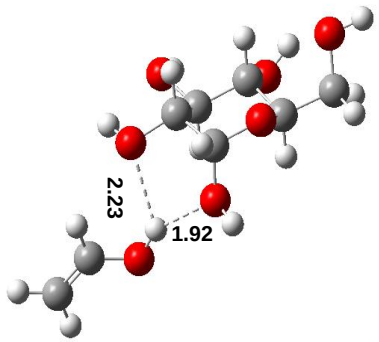
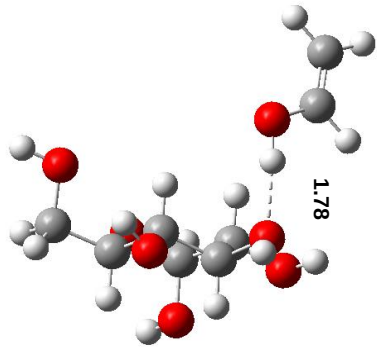


Fig. S6. Power outputs of cube MFCs inoculated with the supernatant of acclimated sludge from methane-generating pond.

Table S1 Calculated hydrogen bond length and binding energy between simplified units of binder and bacterium membrane.

Units	Hydrogen bond length (Å)	Interaction energy (KJ/mol)
	2.38 1.86	-46.47
	2.69 1.79	-48.43
	1.92 2.23	-47.54
	1.78	-34.91

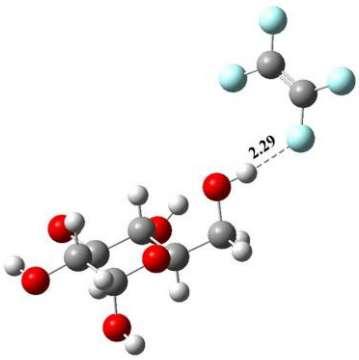
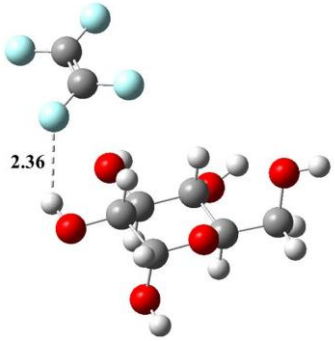
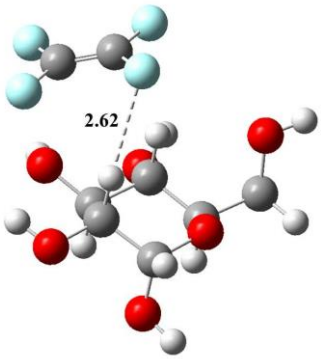
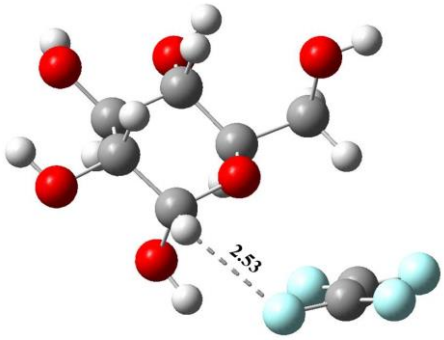
	2.29	-18.09
	2.36	-15.89
	2.62	-15.40
	2.53	-15.59

Table S2 The associated Atomic Charges (q/e) of D-glucose and polysaccharides fit by CHELPG method

Molecule	O_2	O_3	O_4	O_6
glucose	-0.76	-0.79	-0.79	-0.78
O-polysaccharide	-0.76	-0.81	-0.81	-0.80