

Supplementary Materials: Self-Supporting Conductive Polyaniline–Sodium Alginate–Graphene Oxide/Carbon Brush Hydrogel as Anode Material for Enhanced Energy in Microbial Fuel Cells

Yuyang Wang *, Huan Yang, Jing Wang, Jing Dong and Ying Duan

School of Light Industry, Harbin University of Commerce, Harbin 150028, China; 13514621402@163.com (H.Y.); wangwangmayong@126.com (J.W.); dongjing0320@163.com (J.D.); hsd-duany@163.com (Y.D.); tian8154@126.com (Y.T.)

* Correspondence: wangyuyanglover@163.com; Tel./Fax: +86-451-8486-5185

2.2. MFC construction

A dual-chamber MFC with working volume of 150 mL for each chamber was utilized throughout this work. Nafion 117 (Nafion117, DuPont, Wilmington, DE, USA) was used as proton exchange membrane between two chambers. The prepared electrodes were used as anode and three graphite-rods (Xi'an Carbon Materials Co., Ltd., Xian, China) were used as cathode.

The nutrient solution was composed of NaH_2PO_4 (4.97 g/L; A.R. 98%; Beijing Chemical Works, Beijing, China), Na_2HPO_4 (2.75 g/L A.R. 98%; Beijing Chemical Works, Beijing, China), NH_4Cl (0.31 g/L; A.R. Tianjin Fuchen Chemical Reagent Factory, Tianjin, China), CaCl_2 (0.015 g/L; A.R. 99.9%, metals basis, Tianjin Damao Chemical Reagent Factory, Tianjin, China), MgSO_4 (0.2 g/L; A.R. 99.9%, metals basis, Shanghai Alighting Biochemical Technology Co., Ltd., Shanghai, China), $(\text{NH}_4)_2\text{SO}_4$ (0.56 g/L; A.R. 98%; Tianjin Comio Chemical Reagent Co. Ltd., Tianjin, China), KCl (0.13 g/L; A.R. 99.5%; Shanghai Alighting Biochemical Technology Co., Ltd., Shanghai, China) and MnSO_4 (0.02 g/L; A.R. 99%; Shanghai Alighting Biochemical Technology Co., Ltd., Shanghai, China). The microbes were inoculated from the activated sludge and other successfully domesticated strains in microbial reactors. The cathode contained a solution of 10 g/L potassium ferricyanide (A.R. 99.5%; Shanghai Alighting Biochemical Technology Co., Ltd., Shanghai, China).

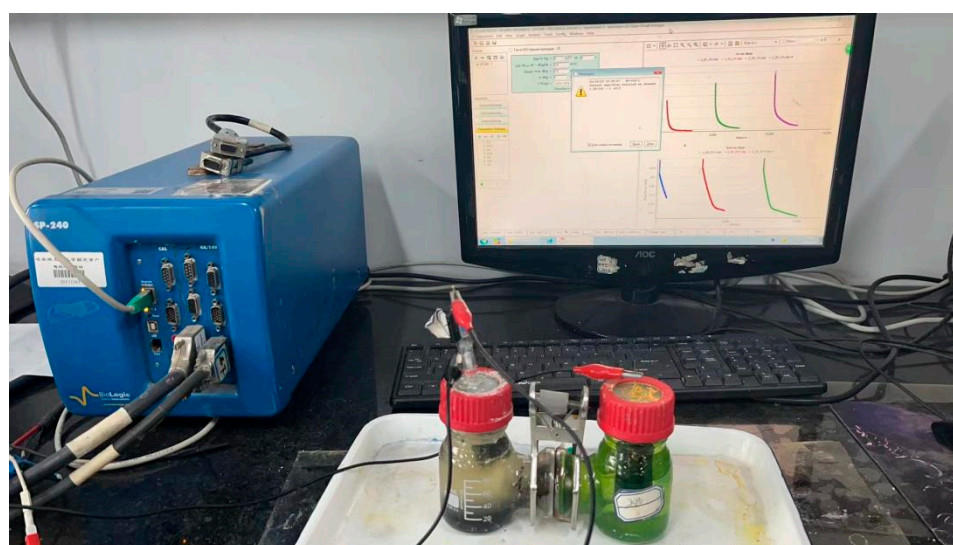


Figure S1. The physical picture of the electrochemical testing process of MFC.

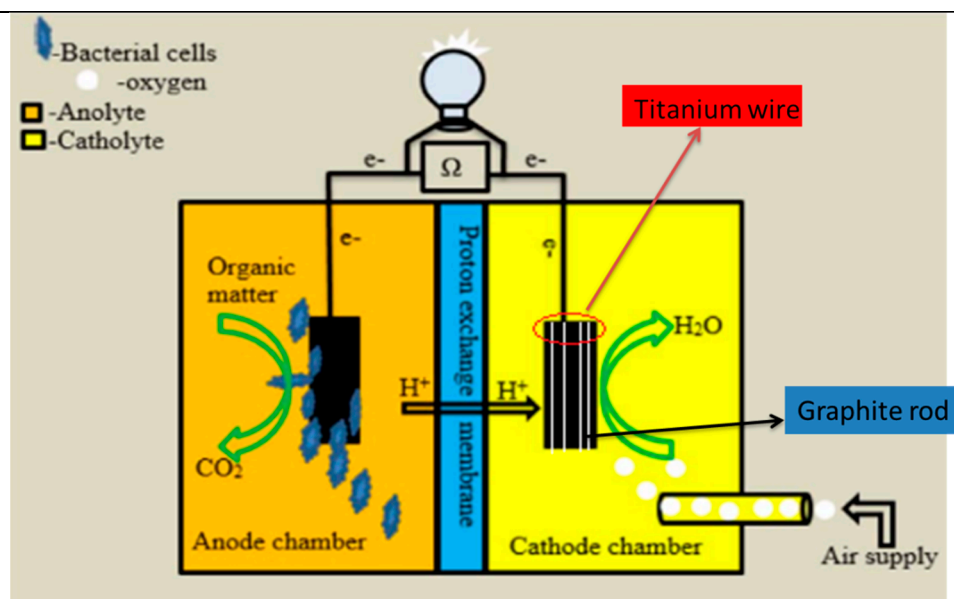


Figure S2. The schematic diagram of double-chamber MFC structure .