Supplementary materials for Manuscript:

Step-feed strategy enhances performance of unbuffered air-cathode microbial fuel cells

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1 pH distribution during batch operation under different Cases

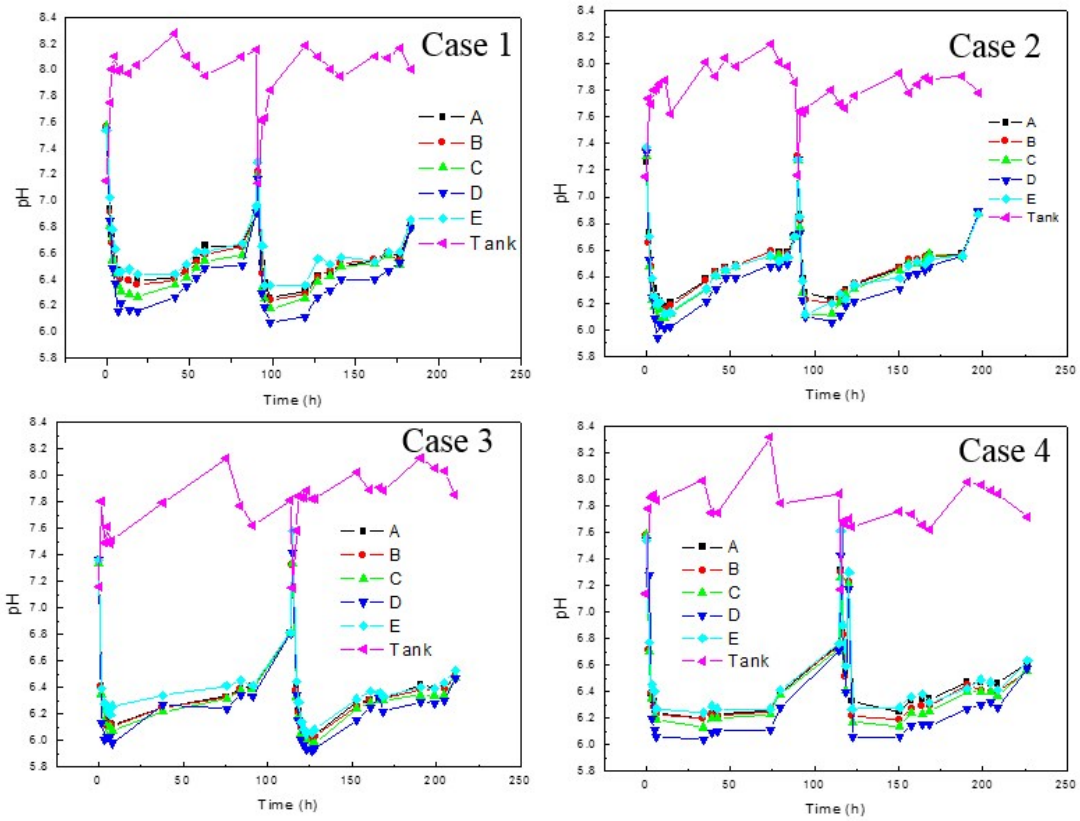

Fig. S1. pH distribution of MFC operated under different Cases during batch operation

pH distribution of MFC operated under different Cases during batch operation was shown in Fig. S1. For all the cases, the anodic pH of MFC with anolyte recirculation showed a quick drop in the first several hours and was distributed in the range of 6.0-6.6. However, the tank pH showed opposite trend with the anodic pH. At the end of the batch, pH distributions of the entire reactor were almost the same due to the low proton production rate and enough time for proton transfer by mixing.

2 COD variation during batch operation under different Cases

COD in the anode chamber and tank of MFC operated under different Cases was measured during the batch operation (Fig. S2). The COD dropped rapidly in the first several hours of each batch, and then decreased at an approximately constant rate until the batches ended.

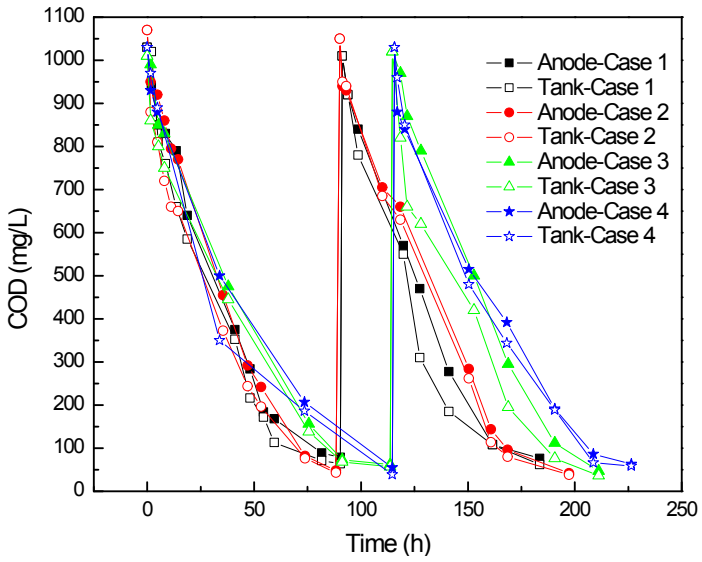

Fig. S2. COD variation in the anode and tank of MFC under different Cases during batch operation

3 Final COD and pH

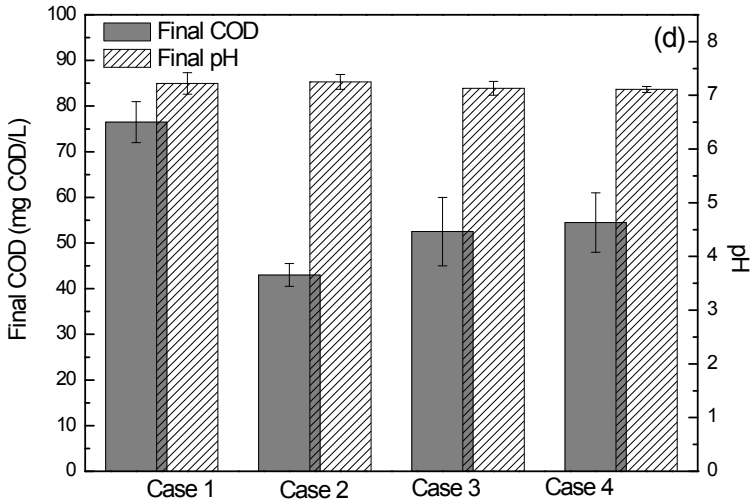

Fig. S3. Average COD and pH of medium in MFC under different cases at the end of batch operation

With an initial COD of 1000 mg COD L^{-1}, the average final COD of MFC operated under Case 1-4 were 76.5, 43, 52.5 and 54.5 mg COD L^{-1}, respectively (Fig. S3). It was observed that all the averaged electrolyte pHs of MFC operated under different cases were nearly neutral at the end of each batch.