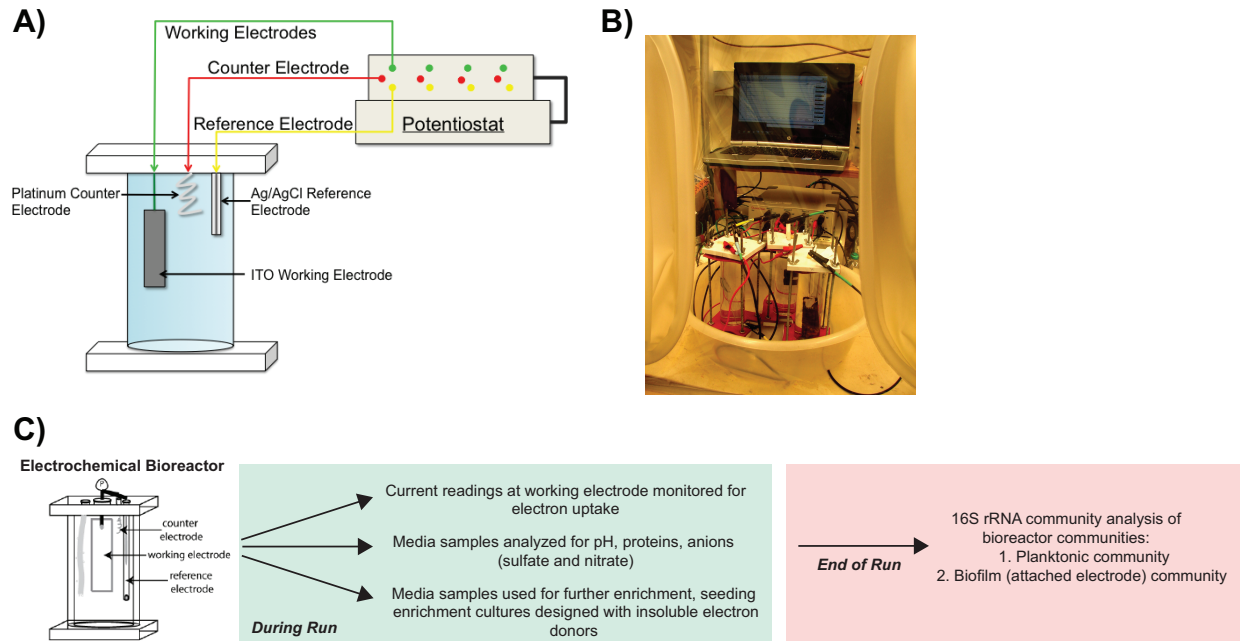
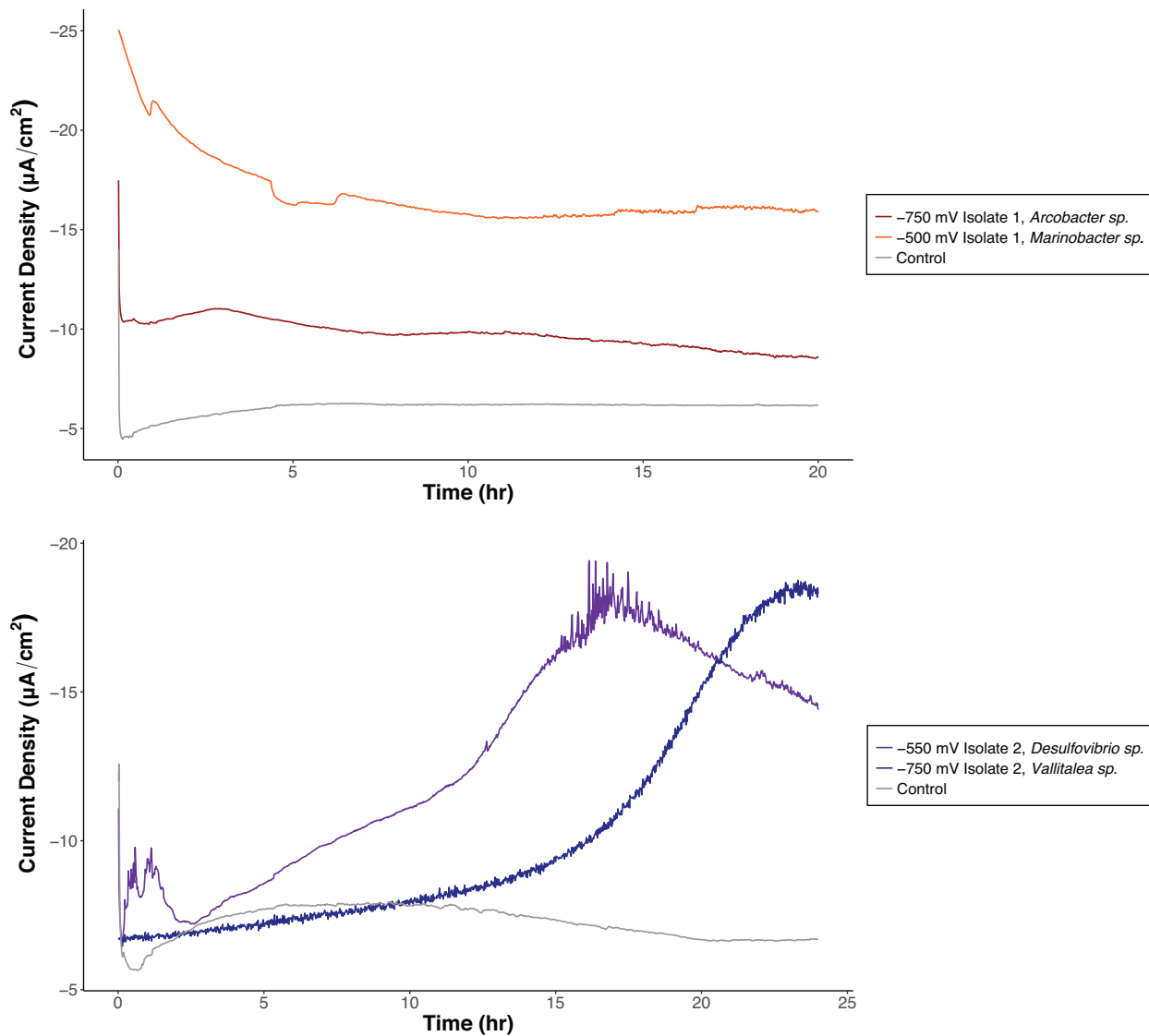


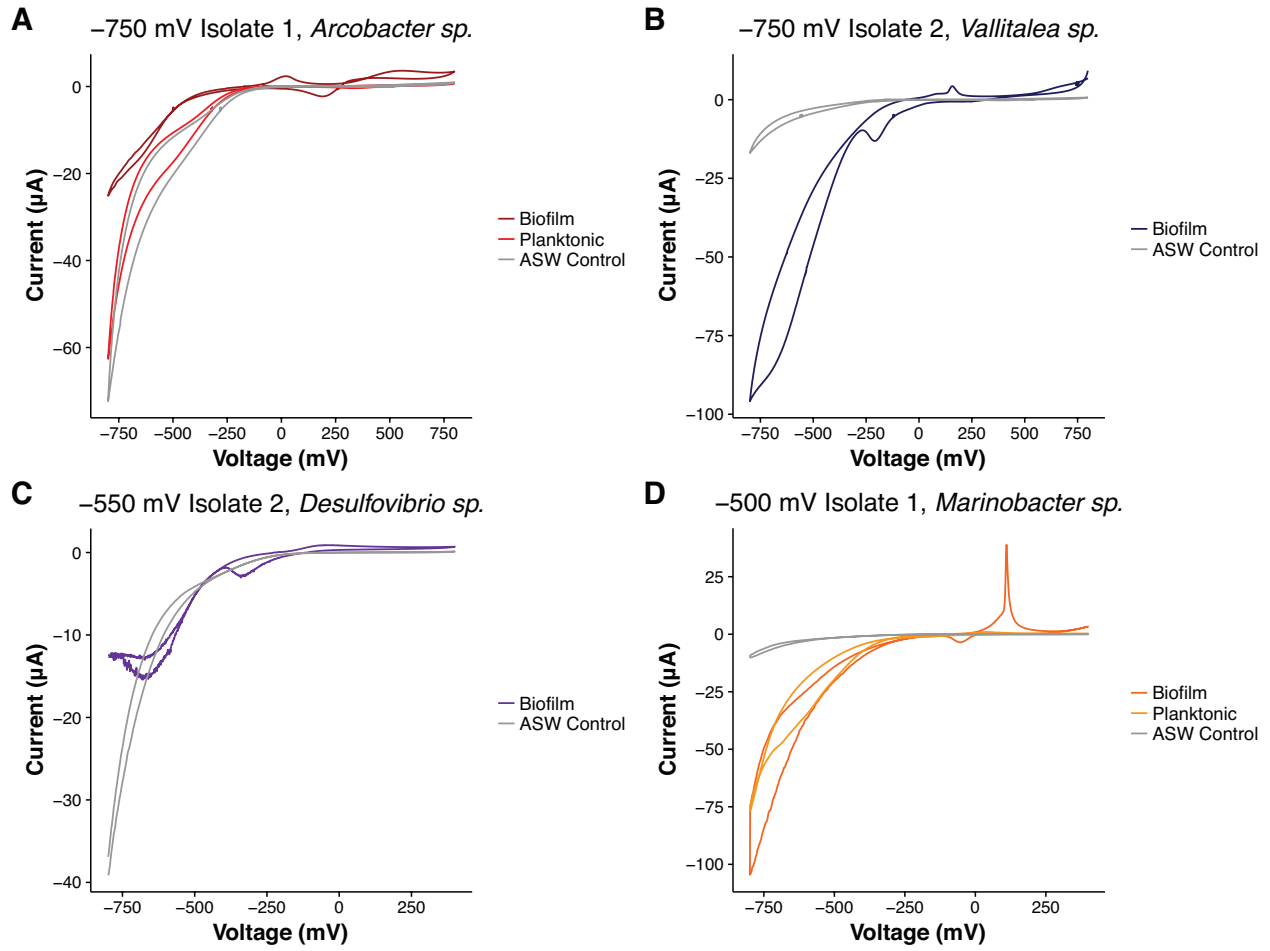
## Supplementary Material



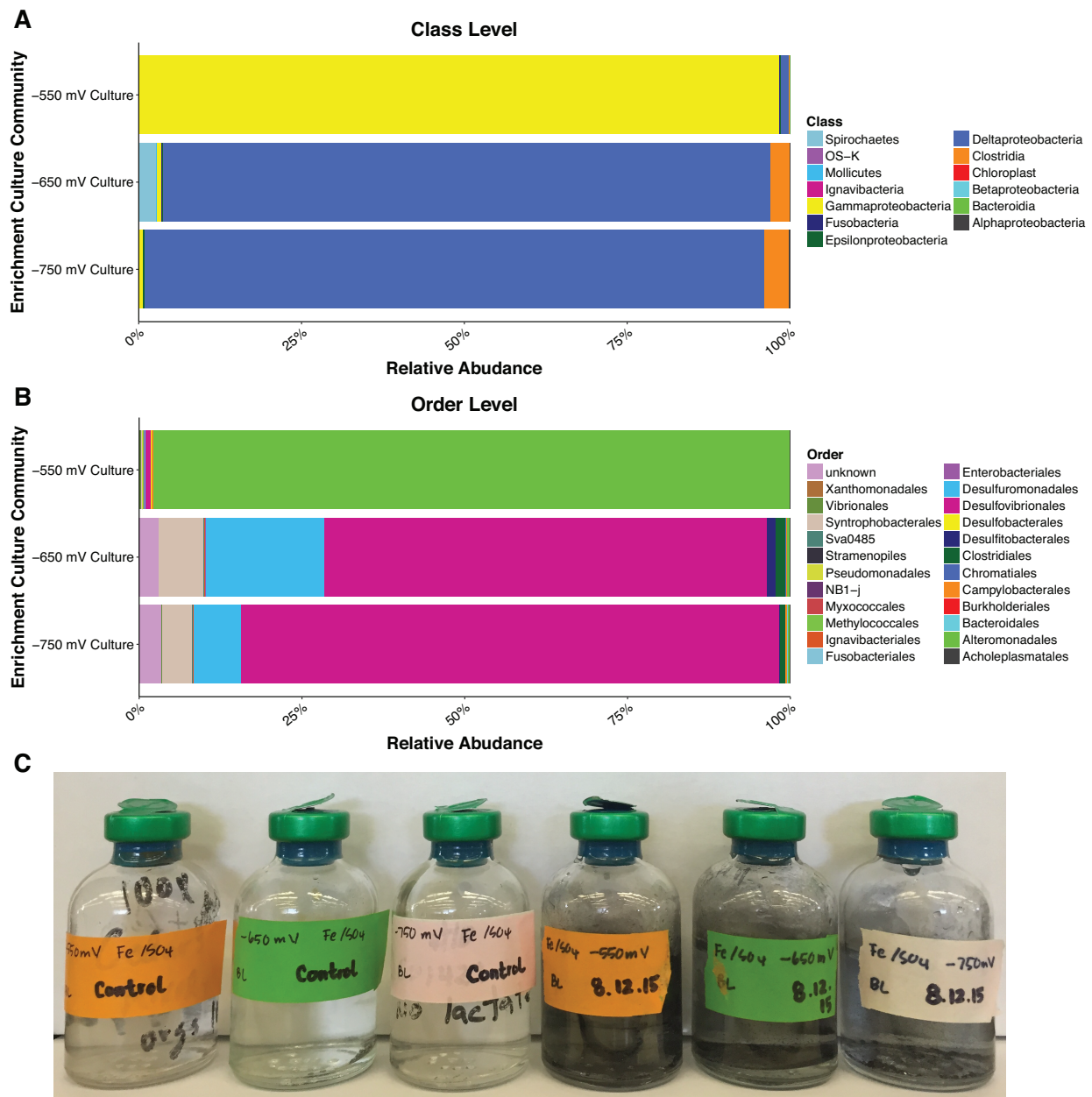
**Supplementary Figure 1. Three-electrode sediment free bioreactors used for electrochemical enrichment.** (A) Diagram of the three-electrode system set-up used for enrichment in the bioreactors, (B) electrochemical bioreactors incubated in the anaerobic chamber, and (C) workflow diagram of bioreactor operation.



**Supplementary Figure 2. Representative chronoamperometry plots for isolates over the course of 20-24 hrs compared to a control of sterile ASW. Electrodes were poised at -600 mV vs. Ag/AgCl for the -750 mV isolates and all other isolate tests were conducted at a poised potential of -400 mV vs. Ag/AgCl.**



**Supplementary Figure 3. Representative cyclic voltammety plots under non-turnover conditions for isolates listed (A-D).** Cyclic voltammety was conducted on biofilm, planktonic cells, and control sterile artificial seawater (ASW control). Scans were run at 5 mV/sec.



**Supplementary Figure 4. Relative abundance at the (A) class and (B) order levels (top 150 OTUs) of  $\text{Fe}^0/\text{SO}_4$  enrichment cultures, and (C) photograph of  $\text{Fe}^0/\text{SO}_4$  enrichment culture serum vials. Enrichment cultures were initially inoculated with media from the -550, -650, and -750 mV (vs. Ag/AgCl) electrochemical bioreactors.**