Supplementary Information

Enhanced growth of *Acidovorax* sp. strain 2AN during nitrate-dependent Fe(II) oxidation in batch and continuous-flow systems

Anirban Chakraborty[1], Eric E. Roden[2], Jürgen Schieber[3], and Flynn Picardal[1]*

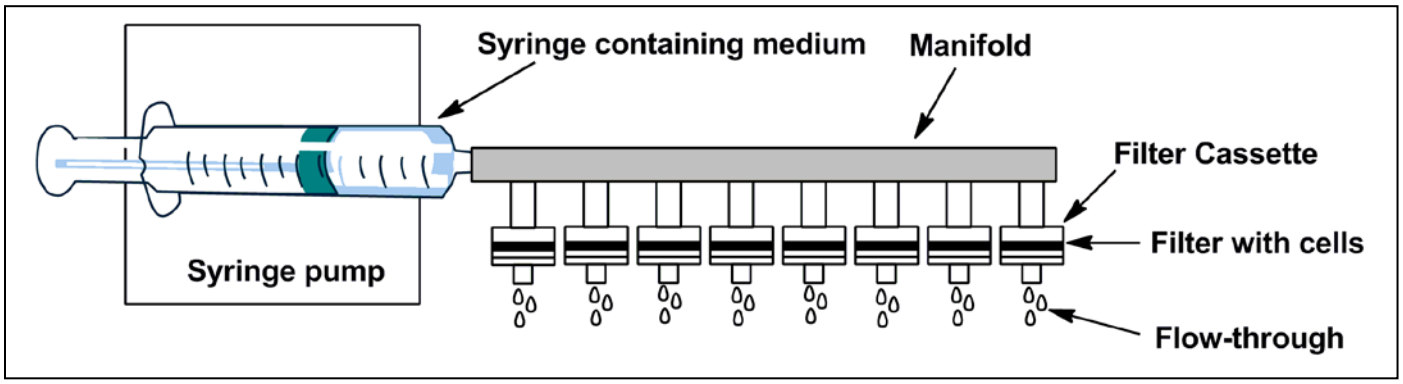


Fig S1: A schematic diagram showing the continuous-flow system assembly and its components.

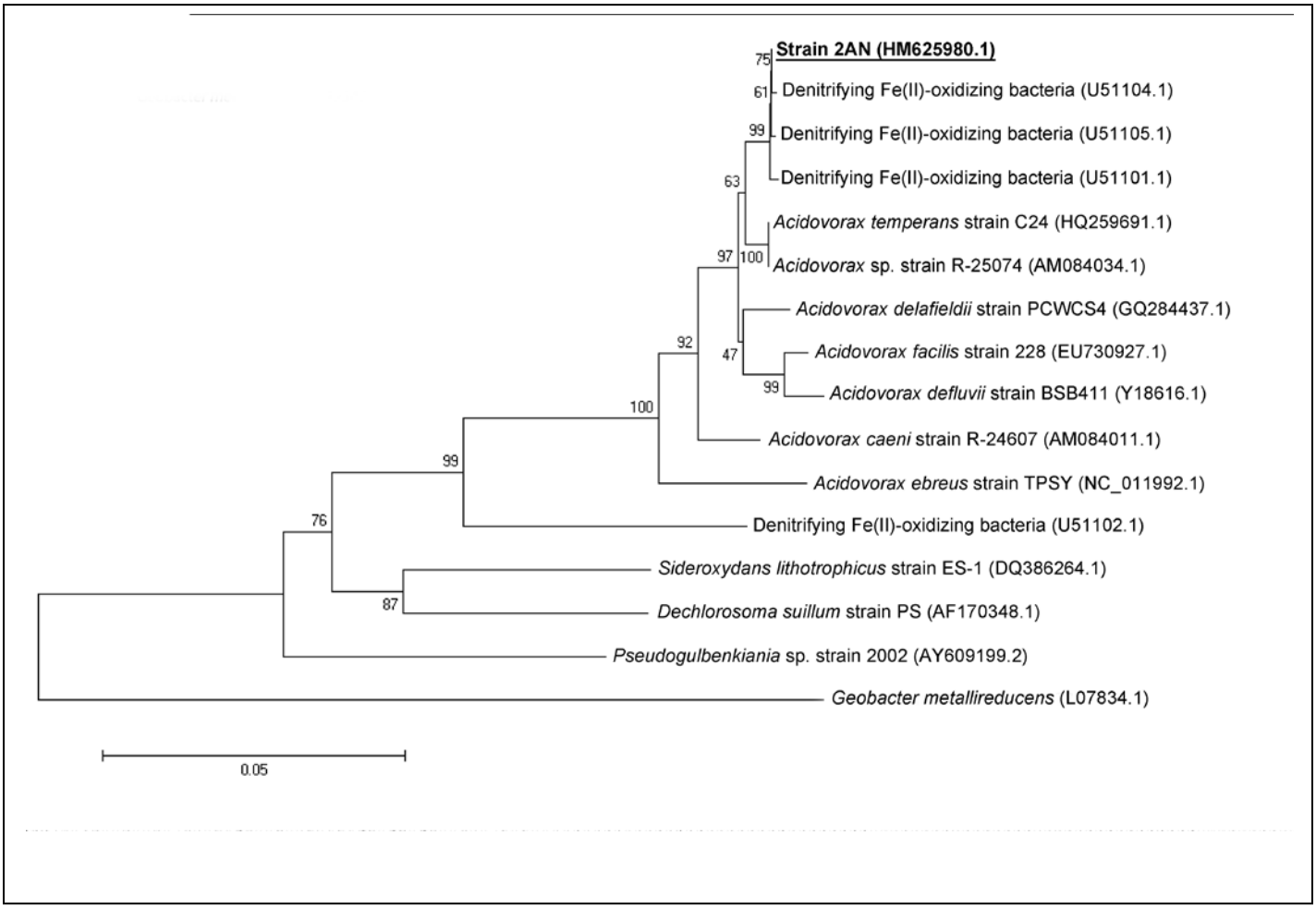


Fig S2: Phylogenetic tree showing *Acidovorax* sp. strain 2AN (accession no. HM625980.1), six related *Acidovorax* isolates (accession nos. HQ259691.1, AM084034.1, GQ284437.1, EU730927.1, Y18616.1 and AM084011.1) and eight neutrophilic, Fe(II)-oxidizing strains (accession nos. U51104.1, U51105.1, U51101.1, NC_011992.1, U51102.1, DQ386264.1, AF170348.1, and AY609199.2). The tree was constructed using the neighbor-joining method in the MEGA 5 program (1). A total of 1262 bases were considered for analysis for each of the 16 sequences. Bootstrap values (1000 replicates) are indicated at the nodes. *Geobacter metallireducens* (accession no. L07834.1) was used as the outgroup. Bar indicates 5% sequence difference.

(1) Tamura K., Peterson D., Peterson N., Stecher G., Nei M., and Kumar S. (**2011**). MEGA5: Molecular Evolutionary Genetics Analysis using Maximum Likelihood, Evolutionary Distance, and Maximum Parsimony Methods. *Molecular Biology and Evolution* **(In Press)**.

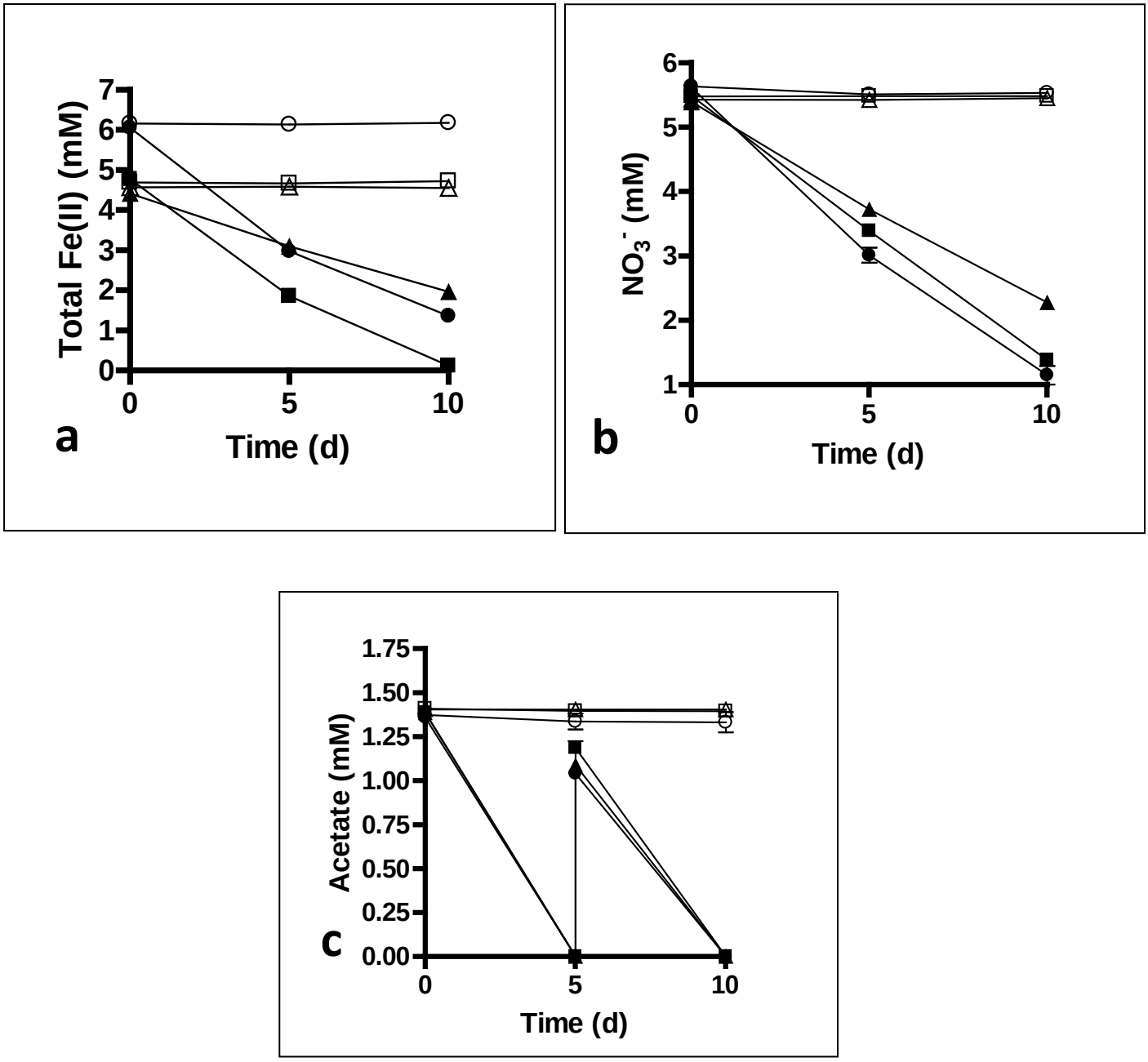
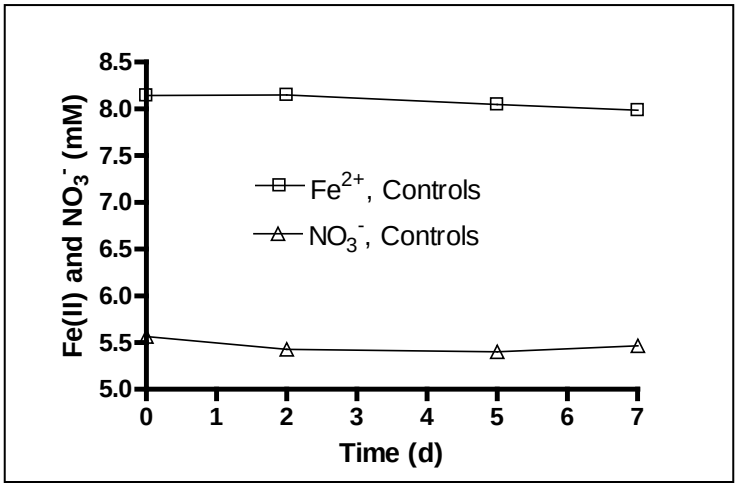


Figure S3: (a) Oxidation of solid phase Fe(II), (b) NO_3^- reduction, and (c) acetate oxidation by *Acidovorax* sp. strain 2AN under mixotrophic conditions. Solid symbols – cultures, open symbols – killed controls (■,□ reduced goethite; ▲, △ magnetite; ●,○ siderite). Total Fe(II) is the sum of aqueous and weak-acid-extractable Fe(II). Initial concentrations were 4.5-6 mM total Fe(II), 5.5 mM NO_3^-, and 1.5 mM acetate. Additional acetate (1.1 mM) was added on day 5. Data are presented as mean ± standard deviations (n=3). When not shown, error bars are smaller than the symbol size.



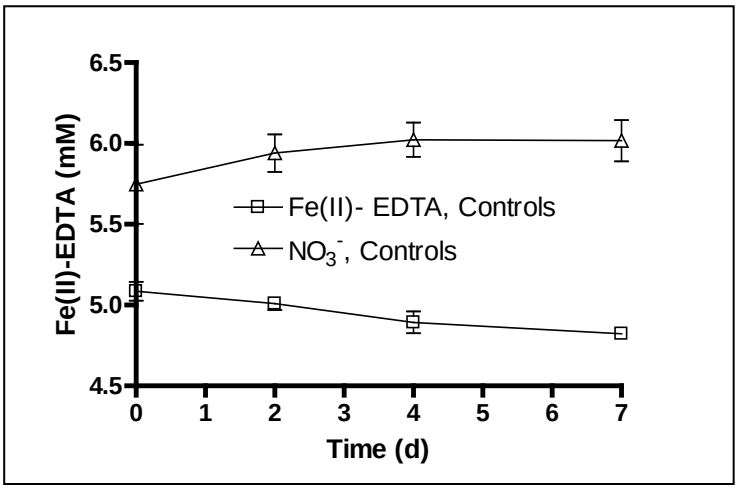


Fig S4: (a) Fe^{2+} and NO_3^- concentrations in controls inoculated with heat-killed cells in batch reactors. (b) Fe(II)-EDTA and NO_3^- concentrations in controls inoculated with heat-killed cells in batch reactors. Data are presented as mean ± standard deviations (n=3). When not shown, error bars are smaller than the symbol size.