

Sulfur reduction in acid rock drainage environments

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Supplementary figures caption

Figure S1 - Experimental flow diagram.

Figure S2 – Colonies of the strain TR1 grown at pH 4, with acetate as electron donor and colloidal sulphur as electron acceptor.

Figure S3 - Effect of temperature on the growth rate of strain TR1 growing at pH 6 and on 5mM acetate. The analyses were carried out in biological duplicates and the results averaged.

Figure S4 - Effect of pH on the growth rate of strain TR1 growing at 30°C and on 5mM acetate. The analyses were carried out in biological duplicates and the results averaged.

Supplementary tables caption

Table S1 – Phylogenetic affiliation of sequences in the sediment mixture from Tinto River used as inoculum. OTU clustering criterium was 98% identity.

Table S2 – Averaged sulfide production (mM) from replicate enrichments incubated at different pH and with different electron donors.

Figure S1

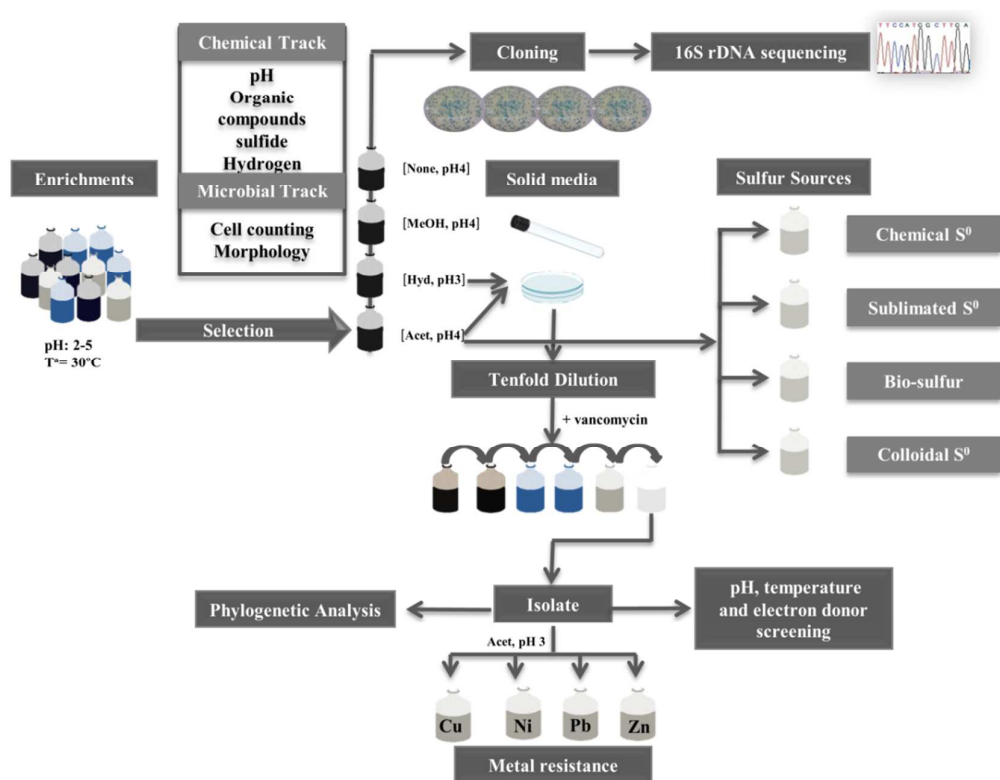


Figure S2



Figure S3

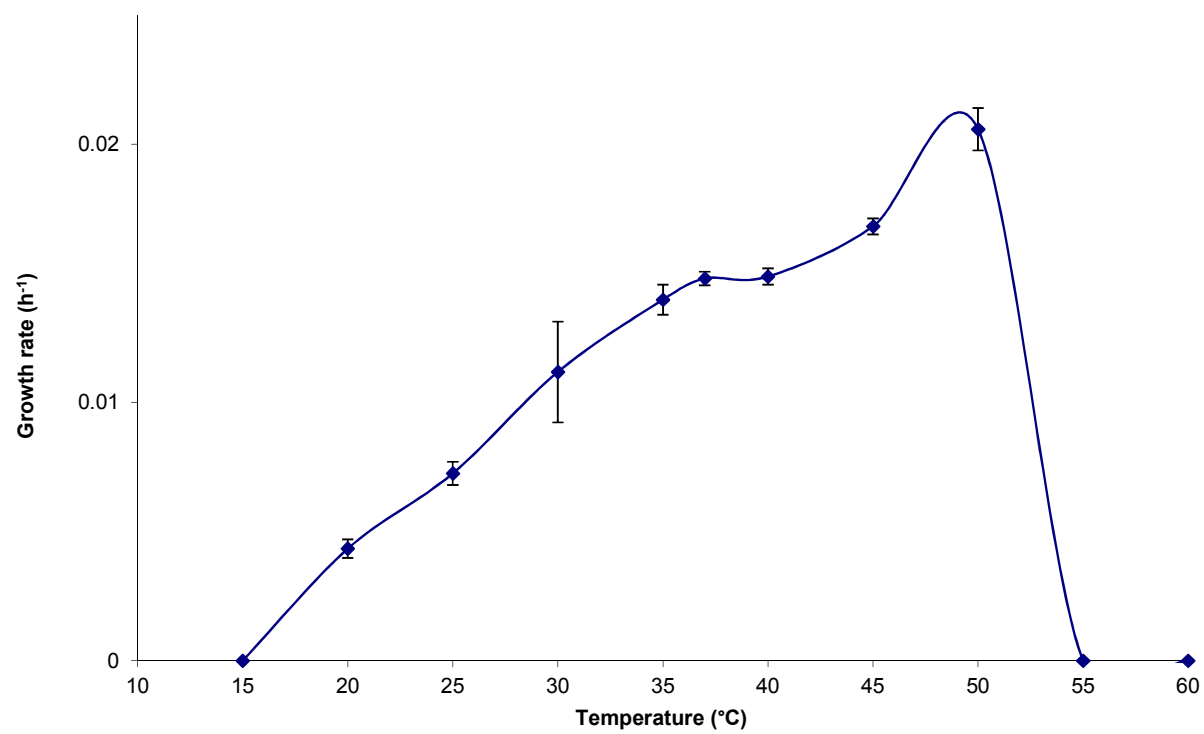


Figure S4

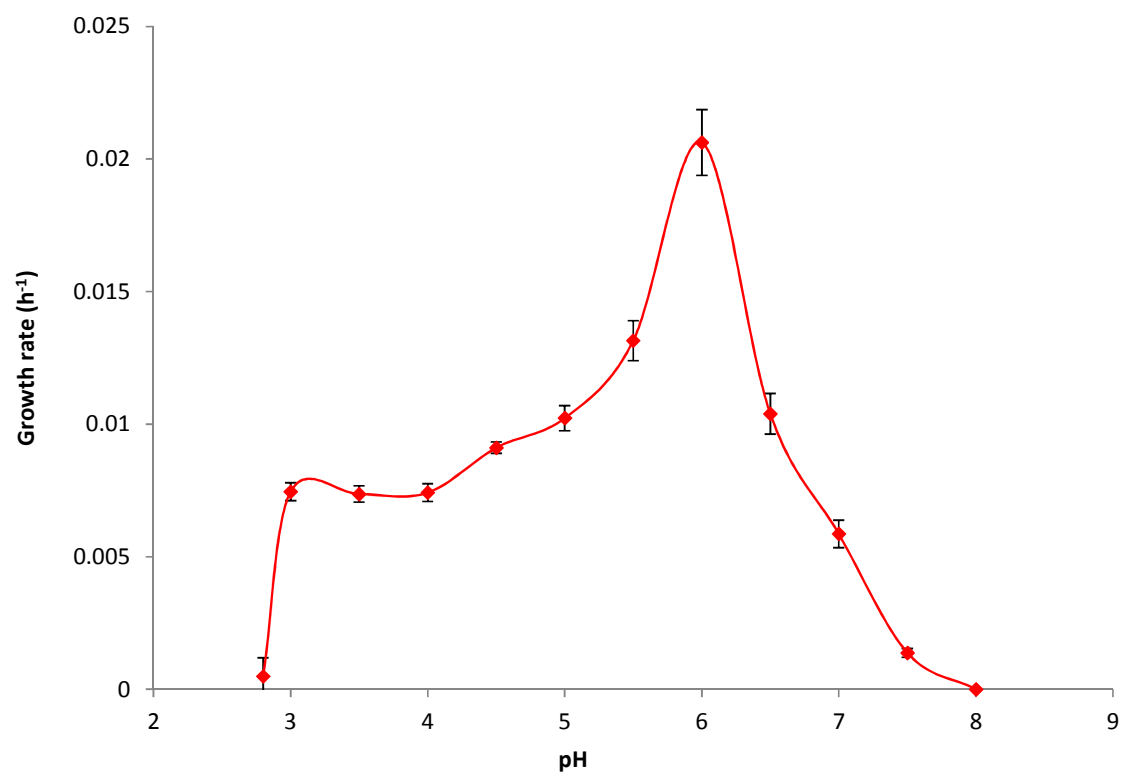


Table S1

N° of OTUs	Phylum	Class	Order	Family	Genus
2	<i>Acidobacteria</i>	<i>Acidobacteria</i>	<i>Acidobacteriales</i>	<i>Acidobacteriaceae</i>	<i>Acidobacterium</i>
16					<i>Granulicella</i>
1					<i>Telmatobacter</i>
22					uncultured
1	<i>Actinobacteria</i>	<i>Acidimicrobiia</i>	<i>Acidimicrobiales</i>	<i>Acidimicrobiaceae</i>	<i>Ferrimicrobium</i>
1					uncultured
2				uncultured	
1		<i>Actinobacteria</i>	<i>Micrococcales</i>	<i>Cellulomonadaceae</i>	<i>Cellulomonas</i>
1				<i>Intrasporangiaceae</i>	<i>Janibacter</i>
1				<i>Micrococcaceae</i>	<i>Arthrobacter</i>
1			PeM15		
1			<i>Propionibacteriales</i>	<i>Propionibacteriaceae</i>	<i>Propionibacterium</i>
1		<i>Coriobacteriia</i>	<i>Coriobacteriales</i>	<i>Coriobacteriaceae</i>	uncultured
2	<i>Bacteroidetes</i>	<i>Bacteroidia</i>	<i>Bacteroidales</i>	<i>Porphyromonadaceae</i>	<i>Paludibacter</i>

1				<i>Prevotellaceae</i>	<i>Prevotella</i>
1		<i>Flavobacteria</i>	<i>Flavobacteriales</i>	<i>Flavobacteriaceae</i>	<i>Sufflavibacter</i>
1	Candidate division				
	TM7				
5	<i>Cyanobacteria</i>	<i>Chloroplast</i>			
15	<i>Firmicutes</i>	<i>Bacilli</i>	<i>Bacillales</i>	<i>Alicyclobacillaceae</i>	<i>Alicyclobacillus</i>
22				<i>Bacillaceae</i>	<i>Bacillus</i>
1				<i>Paenibacillaceae</i>	<i>Brevibacillus</i>
2					<i>Cohnella</i>
2					<i>Oxalophagus</i>
15					<i>Paenibacillus</i>
3					<i>uncultured</i>
2				<i>Planococcaceae</i>	<i>Incertae Sedis</i>
1					<i>Rummeliibacillus</i>
2					<i>Sporosarcina</i>
1				<i>Staphylococcaceae</i>	<i>Staphylococcus</i>

1			uncultured	
34	<i>Clostridia</i>	<i>Clostridiales</i>	<i>Clostridiaceae</i>	<i>Clostridium</i>
1			Family XVIII <i>Incertae Sedis</i>	uncultured
1			<i>Lachnospiraceae</i>	<i>Epulopiscium</i>
1				<i>Incertae Sedis</i>
2				uncultured
1			<i>Peptococcaceae</i>	<i>Desulfitobacterium</i>
11				<i>Desulfosporosinus</i>
2				<i>Desulfotomaculum</i>
1				<i>Desulfurispora</i>
48			<i>Peptostreptococcaceae</i>	<i>Incertae Sedis</i>
8				uncultured
1			<i>Ruminococcaceae</i>	<i>Incertae Sedis</i>
1				<i>Ruminococcus</i>
1				<i>Sporobacter</i>
4				uncultured

1			<i>Thermoanaerobacterales</i>	<i>Thermoanaerobacteraceae</i>	<i>Caldanaerobius</i>
1				<i>Thermodesulfobiaceae</i>	<i>Thermodesulfobium</i>
3		<i>Erysipelotrichi</i>	<i>Erysipelotrichales</i>	<i>Erysipelotrichaceae</i>	<i>Turicibacter</i>
1		<i>Negativicutes</i>	<i>Selenomonadales</i>	<i>Veillonellaceae</i>	
1					<i>Pelosinus</i>
3		OPB54			
1	<i>Nitrospirae</i>	<i>Nitrospira</i>	<i>Nitrospirales</i>	<i>Nitrospiraceae</i>	<i>Leptospirillum</i>
2	<i>Proteobacteria</i>	<i>Alphaproteobacteria</i>	<i>Rhodospirillales</i>	<i>Acetobacteraceae</i>	<i>Acidiphilium</i>
1					<i>Rhodovastum</i>
1		<i>Betaproteobacteria</i>	<i>Burkholderiales</i>	<i>Burkholderiaceae</i>	<i>Burkholderia</i>
1					<i>Cupriavidus</i>
6			<i>Nitrosomonadales</i>	<i>Gallionellaceae</i>	<i>Gallionella</i>
1			TRA3-20		
4		<i>Deltaproteobacteria</i>	<i>Bdellovibrionales</i>	<i>Bacteriovoracaceae</i>	uncultured
2			<i>Desulfurellales</i>	<i>Desulfurellaceae</i>	<i>Desulfurella</i>
6			<i>Syntrophobacterales</i>	<i>Syntrophobacteraceae</i>	<i>Syntrophobacter</i>

1	<i>Epsilonproteobacteria</i>	<i>Campylobacterales</i>	<i>Campylobacteraceae</i>	<i>Arcobacter</i>
30	<i>Gammaproteobacteria</i>	<i>Acidithiobacillales</i>	<i>Acidithiobacillaceae</i>	<i>Acidithiobacillus</i>
1			<i>KCM-B-112</i>	
1		<i>Chromatiales</i>	<i>Chromatiaceae</i>	<i>Nitrosococcus</i>
1		<i>Legionellales</i>	<i>Legionellaceae</i>	<i>Legionella</i>
2		<i>Oceanospirillales</i>	<i>Halomonadaceae</i>	<i>Halomonas</i>
2		<i>Xanthomonadales</i>	uncultured	
2			<i>Xanthomonadaceae</i>	<i>Metallibacterium</i>
12	No Relative			

Table S2

pH	Electron donors added				
	Acetate	Glycerol	Hydrogen	Methanol	No donor
2	-	-	-	-	-
3	8.7 (± 0.8)	1.9 (± 0.1)	10.9 (± 0.9)	1.5 (± 0.1)	1.5 (± 0.3)
4	16.4 (± 1.2)	2.3 (± 0.5)	10.5 (± 0.5)	1.3 (± 0.1)	1.5 (± 0.2)
5	8.11 (± 0.6)	1.1 (± 0.2)	6.9 (± 0.3)	1.6 (± 0.2)	1.7 (± 0.2)