

Fig. S1 The testing device of three-electrode system

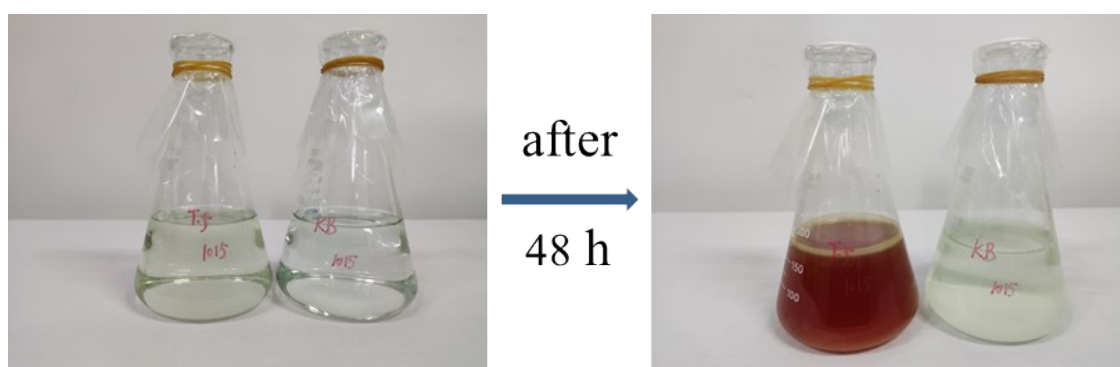


Fig. S2 Appearance color after 48h of culture in 9K medium in two groups

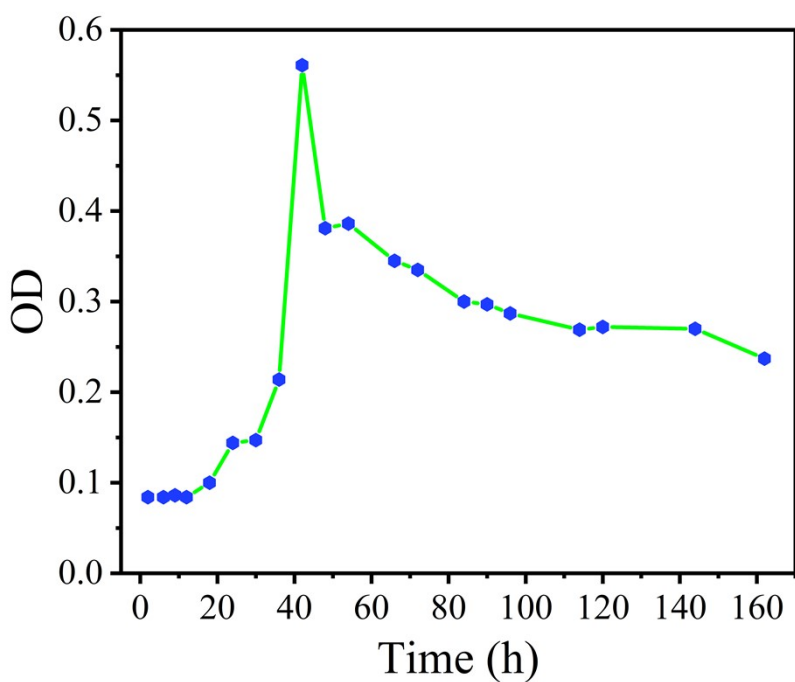


Fig. S3 The OD values of *T. ferrooxidans* from 0-180 h

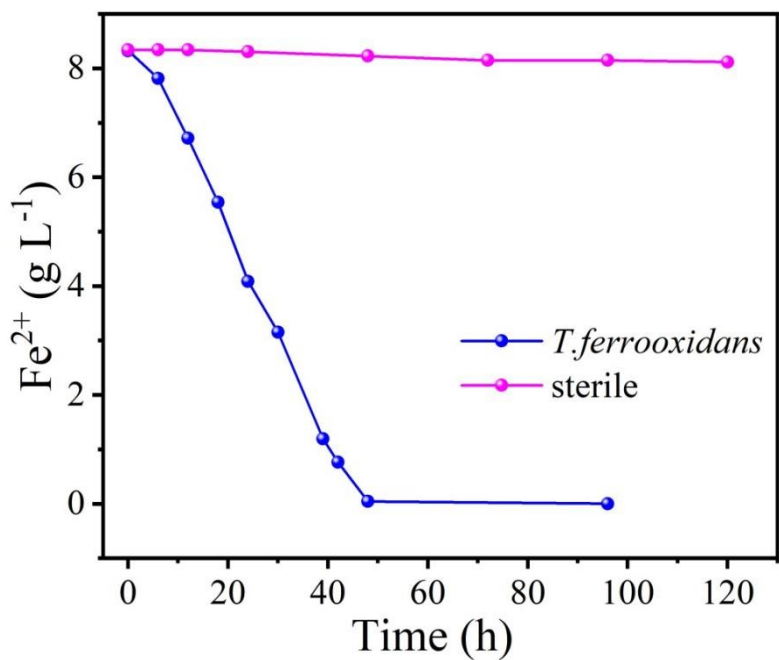


Fig. S4 The concentration of Fe<sup>2+</sup> in *T.ferrooxidans* group and sterile group at different time

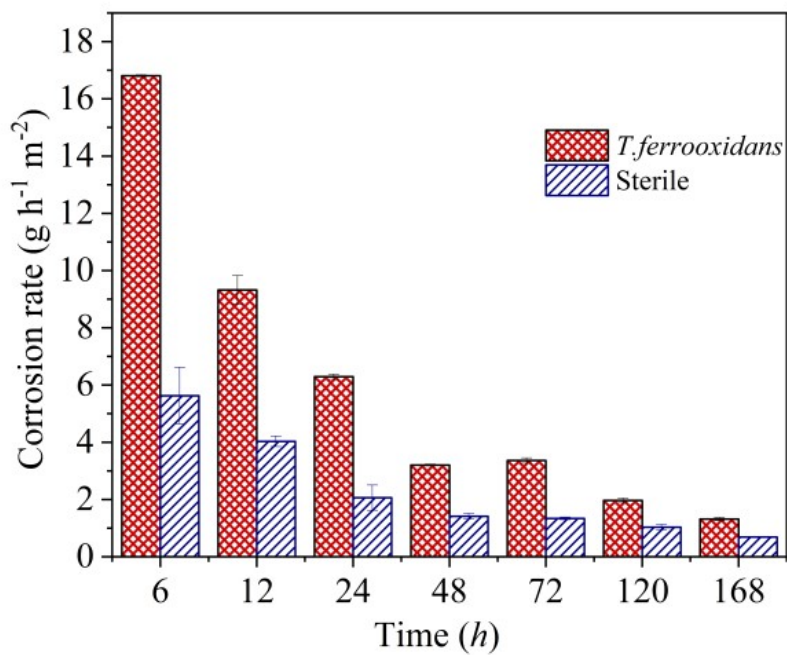


Fig.S5 Corrosion rates of Q235 immersed in sterile medium and *T.ferrooxidans* medium for different periods

Table S1 Composition of Q235 carbon steel (wt%)

Elements	C	Si	Mn	P	S	Al	Ni	Fe
Content	0.15	0.11	0.26	0.12	0.12	0.25	0.1	balance

Table S2 The primers used for PCR

Primers	Sequences (5'-3')	Size(bp)
27F	AGA GTT TGA TCC TGG CTC AG	20
1492R	TAC GGC TAC CTT GTT ACG ACT T	22

Table S3 The 16S rRNA sequence of experimental bacteria

16S rRNA sequence (5'-3')
ACGAGTGGCGGACGGGTGAGTAATGCGTAGGAATCTGTCTTTTAGTGGGGGACAACC CAGGGAAACTTGGGCTAATACCGCATGAGCCCTGAGGGGGAAAGCGGGGGATCTTCG GACCTCGCGCTAAGGGAAGAGCCTACGTCTGATTAGCTAGTTGGTAGGGTAAAGGCC TACCAAGGCGACGATCAGTAGCTGGTCTGAGAGGACGACCAGCCACACTGGGACTGA GACACGGCCCAGACTCCTACGGGAGGCAGCAGTGGGGAATTTTCGCAATGGGGGCA ACCCTGACGAAGCAATGCCGCGTGGATGAAGAAGGCCTTCGGGTTGTAAAGTCCTTT CGTGGGGGACGAAAAGGCGGGTCCTAATACGATCTGCTGTTGACGTGAACCAAGAA GAAGCACCGGCTAACTCCGTGCCAGCAGCCGCGGTAATACGGGTGGTGC AAGCGTTA ATCGGAATCACTGGGCGTAAAGGGTGCGTAGGCGGTACGTTAGGTCTGTCGTGAAAT CCCCGGGCTCAACCTGGGAATGGCGGTAGAAACCGGCGCACTAGAGTATGGGAGAG GGTGGTGAATTCAGGTGTAGCGGTGAAATGCGTAGAGATCTGGAGGAACATCAGT GCGAAGGCGGCCACCTGGCCCAATACTGACGCTGAGGCACGAAAGCGTGGGGAGC AACAGGATTAGATACCCTGGTAGTCCACGCCCTAAACGATGAATACTAGATGTTTG GTACCTAGCGTACTGAGTGTCTGCTAGCTAACGCGATAAGTATT