Table S1 The chemical properties and the mineralogical characterization of the experimental soil

|  |  |
| --- | --- |
| Parameters | Content |
| pH (ratio of soil to water=1:2.5) | 7.55 |
| EC ($μs/cm$) | 204 |
| TOC (C%) | 0.559 |
| TN (g/kg) | 0.20±0.04 |
| TP (g/kg) | 0.42±0.12 |
| Cation exchange capacity (cmol(+)/kg) | 12.1 |
| Particle size analysis (%) |  |
| Clay ($<0.002mm$) | 13.7 |
| Silt (0.002-0.05mm) | 78.4 |
| Sand (0.05-2mm) | 7.9 |

Table S2 Summary of TC-MFC data with different external resistances (0, 100,2000 Ω)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Rext (Ω) | Initial current(mA) | Initial cathode potential(mV) | Removal efficiency(100%) | Cathode deposits |
| 0 | - | -240 | 100 | Cu |
| 100 | 0.91±0.11 | -26 | 100 | Cu |
| 2000 | 0.25±0.02 | +98 | 21.25 | CuSO4·3Cu(OH)2 |