

**Figure S1.** Scanning electron micrographs (SEM) of the isolate LC-4 grown at increasing copper concentrations ( $\mu\text{M}$ ): (a) 10, (b) 25, (c) 50, (d) 75, (e) 100, (f) 150.

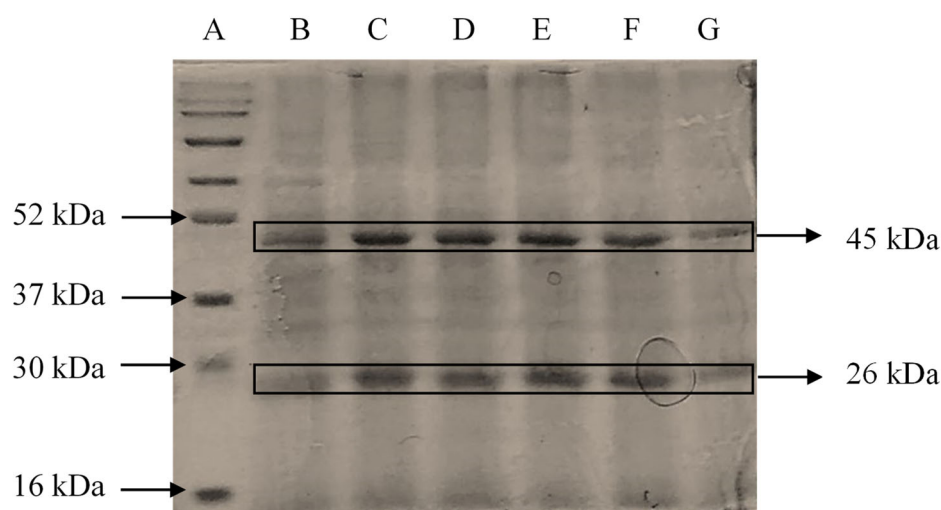
### Sodium dodecyl sulphate-polyacrylamide gel electrophoresis (SDS-PAGE)

SDS-PAGE was conducted with a separating gel (12%) and stacking gel (5%), in a BioRad Miniprotein III system. The samples were prepared by solubilizing 2 mg of bio-mass directly in gel loading buffer and heating at  $90^\circ\text{C}$  for 5 min before loading onto gel. After electrophoresis, protein bands were visualized by Coomassie Brilliant Blue R250 staining.

### Formate dehydrogenase Assay

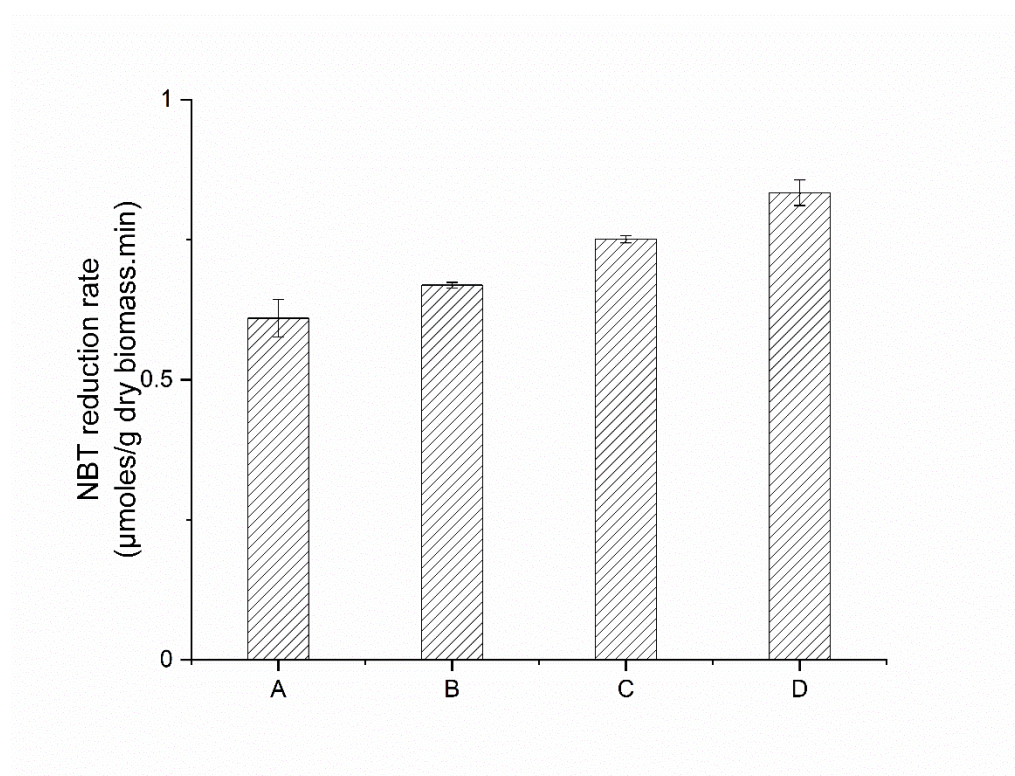
Formate dehydrogenase enzyme activity by intact cells of LC-4 was measured by Nitro blue tetrazolium (NBT) dye-linked dehydrogenase assay, using phenazine methosulfate (PMS) as the mediator and sodium formate as the substrate [1]. The reaction mixture

contained 250  $\mu\text{M}$  NBT, 100  $\mu\text{M}$  PMS, 10 mM sodium formate, and 1 mg dry biomass in 2 mL fresh NMS media and was incubated for 1 h at 200 rpm shaking. The cells were pelleted and washed twice with methanol, and the color was solubilized by incubating the cell pellet in 1 mL dimethyl sulphoxide (DMSO) containing 15 mM ammonia. The relative NBT reduction activity was calculated as described by Urban and Jarstrand [2]. The formate dehydrogenase activity of cells is estimated as a difference in NBT reduction activity in the presence of formate.



**Figure S2.** SDS-PAGE analysis of LC-4 grown at increasing concentration of copper. Lane (A) Ladder, (B) 10  $\mu\text{M}$ , (C) 25  $\mu\text{M}$ , (D) 50  $\mu\text{M}$ , (E) 75  $\mu\text{M}$ , (F) 100  $\mu\text{M}$ , (G) 150  $\mu\text{M}$ .

$$\text{NBT reduction rate } (\mu\text{moles/g} \cdot \text{min}) = \frac{OD_{600}}{12.3 * \text{biomass}(g) * \text{time}(min)}$$



**Figure S3.** NBT reduction rate of LC-4 cells grown without tungstate (A) without formate (B) with 10 mM formate added in the reaction mixture; LC-4 cells grown with 0.5  $\mu$ M tungstate (C) without formate (D) with 10 mM formate added in the reaction mixture.

## References

1. Urban, T., Jarstrand, C., 2009. Nitroblue Tetrazolium (NBT) Reduction by Bacteria. *Acta Pathologica Microbiologica Scandinavica Section B Microbiology*, 2009, 87B, 227-233.
2. Wang, H., Wang, F., Tao, X., Cheng, H., 2012. Ammonia-containing dimethyl sulfoxide: An improved solvent for the dissolution of formazan crystals in the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT) assay. *Analytical Biochemistry*, 2012, 421, 324-326.