13<sup>th</sup> International Conference on

## **Microbial Interactions & Microbial Ecology**

July 19-20, 2018 | Rome, Italy

## Simultaneous microbial and electrochemical reductions of vanadium (V) with bioelectricity generation in microbial fuel cells

Song Wang and Baogang Zhang China University of Geosciences Beijing, Beijing 100083, China

Simultaneous microbial and electrochemical reductions of vanadium (V) with bioelectricity generation were realized in microbial fuel cells (MFCs). With initial V(V) concentrations of 75 mg/L and 150 mg/L in anolyte and catholyte, respectively, stable power output of  $419 \pm 11 \text{ mW/m2}$  was achieved. After 12 h operation, V(V) concentration in the catholyte decreased to the value similar to that of the initial one in the anolyte, meanwhile it was nearly reduced completely in the anolyte. V(IV) was the main reduction product, which subsequently precipitated, acquiring total vanadium removal efficiencies of 76.8  $\pm$  2.9%. Microbial community analysis revealed the emergence of the new species of Deltaproteobacteria and Bacteroidetes as well as the enhanced Spirochaetes mainly functioned in the anode. This study opens new pathways to successful remediation of vanadium contamination.

ws16212@163.com