



## **Influence of introduced *Sonneratia apetala* on nutrients and heavy metals in intertidal sediments**

ruili Li, minwei chai, and guo yu Qiu

Shenzhen Engineering Laboratory for Water Desalination with Renewable Energy, School of Environment and Energy, Peking University, Shenzhen, China (liruili2000@163.com)

To investigate the influence of *Sonneratia apetala* on nutrients and heavy metals in intertidal sediments, core sediments from a *S. apetala* forest and adjacent mud flat in Futian Nature Reserve (Shenzhen Bay, China) were analyzed. The results showed that total carbon (TC), total nitrogen (TN), and total sulfur (TS) in *S. apetala* site were higher than mud flat site, indicating its improvement on soil nutrient properties. Concentrations of As (*S. apetala*: 199.66  $\mu\text{g/g}$ , mud flat: 152.40  $\mu\text{g/g}$ ) were higher than probable effect concentrations, suggesting heavy pollution of As in sediments of *S. apetala* and mud flat sites. Furthermore, compared with mud flat site, sediments from *S. apetala* site have higher heavy metals, including Cr, Ni, Cu, Zn, As, Cd, Pb, and Hg. Overall, the heavy metals in both sites were in the same order of  $\text{Zn} > \text{As} > \text{Hg} > \text{Cr} > \text{Cu} \approx \text{Pb} > \text{Ni} > \text{Cd}$ . In *S. apetala* site, organic matters (TC, TN, and TS) were positively correlated with Cu, Zn, and Hg, different from Cu, Zn, Hg, and Cd in mud flat site, indicating less important role of organic matter in trapping heavy metals. In addition, there were positive correlations among Ni, Cu, Zn, and Cd in *S. apetala* and mud flat sites, indicating the similar sources mainly from increasing municipal and industrial wastewater discharges.