

## Study of the Availability and Speciation of Heavy Metal Elements in Soil of Wuming, Guangxi

QIUBEIGU<sup>1</sup>, QINGYE HOU<sup>1</sup>, ZHONGFANG YANG<sup>1</sup>, TAO YU<sup>1\*</sup>

<sup>1</sup>School of Earth Sciences and Resources, China University of Geosciences, Beijing, China  
(\*Correspondence: yutao@cugb.edu.cn )

Soil is one of important resources for human beings. With the rapid social economy development, urbanization and population growth, lots of heavy metal elements exist in various forms in soil by physical and chemical pathways. The migration and harmful levels of heavy metal elements depend on morphology distribution in contaminated soil. Addition-ally, the speciation of heavy metals directly influence the harmfulness of soil microbial, biological activity and crops, as well as ecological and environmental quality. Heavy metal availability and speciation were researched in soil of Wuming by Tessier sequential extraction, of which lead(Pb), cadmium (Cd), chromium(Cr) and arsenic(As), mercury(Hg) respect-ively, were analyzed using Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES) and Atomic Fluo-rescence Spectrometer(AFS).

Here, soil Pb, Cr, As and Hg mainly existed in residual form, and Cd in ion-exchangeable speciation. It indicates that Pb, Cr, As and Hg with minimum activity and toxicity can't be absorbed and utilized by plants under normal circum-stances[1]. And Cd is easily absorbed by organisms, and has strong migratory ability and activity. The contents of available Cd were 54.88% and 34.11% at Ningwu town and Jin-ling town, respectively, the highest content among all metal elements that has greater environmental harmfulness. The content of available Pb was 16.12%, suggesting greater po-tential ecological harmfulness because of soil acidification at Ningwu town. The activity coefficient and migration coeffi-cient of Cd element were the highest that achieved 0.54 and 0.45 respectively, showing a strong activity, instability and mi-gration capability. In conclusion, we should pay more and more attentions to availability and speciation of soil Cd and Pb.

[1] Kabala C, Singh B R. (2001) *Journal of Environmental Quality*. 2, 485-492.