

As Speciation in Guandu Soils with High As Contents yet Low As Availability

言語 / 英語 Language/English

Friday, **Sep 27**, 2019, 15:00-16:00

東京農工大学 小金井キャンパス BASE本館1階 講義室 2
Lecture Room 2, 1st Fl., BASE, Koganei Campus, TUAT



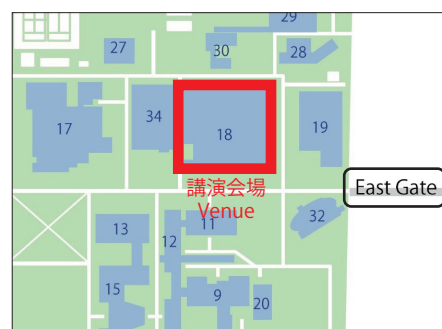
Prof. Shan-Li Wang

Soil Chemistry, Department of Agricultural Chemistry
National Taiwan University, Taiwan

The concentration of arsenic (As) in the soils of Guandu Plain in Taipei, Taiwan is as high as approximately 500 mg kg⁻¹. Although the As levels in Guandu soils are high, the rice grain/soil ratios of As are significantly lower than those in other areas, previously reported in the literature. To understand the reason of low As availability in Guandu soils, the sources and speciation of As in the soils were investigated using the analyses of X-ray absorption spectroscopy and sequential extraction. The depth profiles of soil properties and As speciation revealed the origin of beudantite in the soils was likely allochthonous rather than authigenic or anthropogenic. The formation of scorodite in the surface soils was suggested to be transformed from beudantite. As-associated Fe hydrous oxides may be contributed by the progressive dissolution of beudantite and scorodite, and the continuous influxes of As and Fe. In the incubation experiments, the redox potential in the soils decreased from 249 to -234 with submerging time. The low As/Fe ratio in the soil solids and solutions indicated that the release of As during the submerging period of the soils may be retarded by the high adsorption capacity of Fe hydrous oxides in the soils. Meanwhile, the oxidation of Fe(II) to Fe(III) and the consequent formation of Fe oxides in rice rhizosphere further inhibited the uptake of As by the rice root. These processes resulted in the low uptake rate of As by rice plants. The information obtained in this study may be useful in developing strategies to immobilizing As in rice paddy soils.

■共催 / Co-organized by
グローバルイノベーション研究院 エネルギー分野 寺田チーム
Institute of Global Innovation Research "Energy" Terada Team
卓越大学院プログラム
Excellent Leader Development for Super Smart Society
by New Industry Creation and Diversity

■お問合せ先 / Contact
グローバルイノベーション研究院 農学研究院 橋本洋平
Institute of Global Innovation Research, Institute of Agriculture
Associate Professor Yohei Hashimoto
e-mail: yhashim (ここに @ を入れてください) cc.tuat.ac.jp



どなたでも、ご聴講いただけます。
Everyone is welcome to attend.