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Soil Acidification and its control strategies

Abstract

Soil acidification is a natural process during soil formation and its rate is very slow under natural conditions. While soil acidification was accelerated greatly due to acid deposition and excess application of chemical N fertilizers in past 30 years in China. This lecture will present on eight aspects of soil acidification: 1. Acid soils and their distribution; 2. Several key words related to soil acidification; 3. Soil acidification under natural conditions; 4. Effects of acid deposition on soil acidification; 5. Effects of agricultural practices on soil acidification; 6. Negative impacts of soil acidification on agricultural and environment; 7. Control strategies for soil acidification; 8. Amelioration of acidic soils. This lecture can serve as a 101 for students who are interested in soil acidification in China.

Biography:

Renkou Xu, Ph.D., Institute of Soil Science, Chinese Academy of Sciences (ISSAS): Dr. Xu is a professor of soil chemistry at ISSAS. He graduated from Department of Chemistry, Xuzhou Normal University in 1988 and obtained his M.S. degree and Ph. D in this institute in 1991 and 1997, respectively. He had been visiting Australia for almost one year from December, 1999 to November, 2000 and worked in Department of Agronomy and Farming Systems in Adelaide University on soil acidification. He was pointed as a research professor by the Institute in 2004 and since then he has been a leader of the group of Soil Surface Chemistry. He had been visiting Department of Soil Science, University of Saskatchewan, Canada as visiting professor from 2007.2-2007.6 and 2008.1-2008.3. He was pointed as the director of Department of Soil Chemistry and Environmental Protection by Institute of Soil Science, CAS since 2012 and the deputy director of Soil Chemistry Division of Soil Science Society of China since 2008. He has been a scientific advisor for International Foundation for Science since 2007. He focuses on his main interests in these aspects: (1) soil acidification, melioration of acid soils and control of aluminum toxicity to plants; (2) surface chemical characteristics of variable charge soils; (3) chemical behaviors of heavy metals in acidic soils.





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Overview of Land degradation, soil pollution and remediation in China

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Soil is an important component of the earth surface system and fundamental to life processes in the terrestrial ecosystems. It is also essential for agricultural production and thus is the material foundation that supports human life. With rapid development of industrialization urbanization and agricultural intensification in China, large amounts of anthropogenic emissions of different types of pollutants have entered the soil environment through multiple pathways, causing land degradation and soil pollution.

This lecture will present on four aspects which include the importance of soil in nature, overview of Chinese soil types, soil degradation in China, and soil pollution and remediation in China. This lecture will be helpful for better understanding of the situation of land degradation and the research status and development trend on soil pollution and remediation in China. It will promote the knowledge spreading, international exchange and cooperation on soil pollution and remediation between EU project partners.



Biography: Wenfeng Tan is currently Professor of Soil Science at Huazhong Agricultural University (HZAU). He received his Ph.D. degree from HZAU in 2000. During 2006-2007 he had worked as post-doctoral in laboratory of physical chemistry and colloid science of Wageningen University. He was awarded Outstanding Young Research Follow of Natural Science Foundation of China in 2014, and Hundreds of Chinese Academy of Sciences Program in 2009. His research interests include mineral-humic substance interactions from geochemical perspective, application to nutrients and toxins in the environment and their mobility.



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Investigation of ARB/ARGs contamination in the agricultural soil in the Yangtze Delta, China

Abstract

Abusive use of antibiotics has resulted in the emergence of various antibiotic resistant bacteria (ARB) and genes (ARGs). Transmission with the food web, they have brought serious threat against human health and environmental safety. Therefore, it is urgent to investigate the underlying ARB/ARGs transmission mechanisms in the environment, and more importantly, the targeting technology to control their transmission, and decrease the environmental risk. This presentation mainly focuses on the investigation of ARB/ARGs contamination in the agricultural soil in the Yangtze Delta, China, and the development of targeting technology to control their dissemination.

Biography:

Mao Ye, Ph.D., Institute of Soil Science, Chinese Academy of Sciences (ISSAS): Dr. Ye is an associate professor with ISSAS. Dr. Ye received his Ph.D. degree in Environmental Science in the ISSAS. He was a postdoctoral fellow in the University of Nebraska-Lincoln and Texas A&M University. He has published more than 40 SCI research papers in internationally famous journals. He was elected to the young talent prize of Chinese Academy of Sciences. He specializes in the remediation techniques for organic and inorganic compounds mixed contaminated sites. He is now a member of the American Chemical Society.

