

JOINT EVENT

5th World Conference on **Climate Change**

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16th Annual Meeting onOctober 04-06, 2018
London, UK**Environmental Toxicology and Biological Systems****Effects of composted sludge application on greenhouse gases emissions from paddy soil and heavy metals accumulation in soil and plant****Jing Ma, Yaping Shi, Haiyang Yu, Kaifu Song, Hua Xu and Guangbin Zhang**
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With the increase in municipal sludge, applying sludge in agriculture has been of great concern. A field experiment was conducted to investigate the effects of three different fertilization practices (CK, no N-fertilizer application; N240, applying N-fertilizer at a rate of 240 kg N ha⁻¹; OF, applying composted sludge at a rate of 240 kg N ha⁻¹) on methane and nitrous oxide emissions from paddy soils and heavy metals accumulation in soil and plant. The results showed that methane emission of treatment OF was 68.09 kg ha⁻¹, being approximately 2-fold those of treatments N240 and CK ($p < 0.05$). The N₂O emission of treatment OF was 0.94 kg N ha⁻¹, being 46% lower than that of treatment N240 ($p < 0.05$) and 6-fold that of treatment CK ($p < 0.05$). The contents of the total heavy metals in the soil were far below the national standard of environmental quality standards for soils for Grade II (GB 1518-1995) and no significant difference was observed among three treatments ($p > 0.05$). Different heavy metals accumulated in different parts of the plant. The accumulation of Zn, Cd was straw > crust > seed, and Cr, Ni, Cu was crust > straw > seed. For treatment OF, the content of Cu in rice grain was 10% ($p > 0.05$) less than that of treatment N240, but the contents of Cr, Zn and Cd in rice grain were 76%, 31% and 50% ($p < 0.05$) higher than that of treatment N240, respectively.

Recent Publications

1. Guangbin Zhang, Jing Ma, Yuting Yang, Haiyang Yu, Yaping Shi, et al. (2017) Variations of stable carbon isotopes of CH₄ emissions from three typical rice fields in China. *Pedosphere* 27(1):52–64.
2. Minmin Sun, Yuan Zhang, Jing Ma, Wenping Yuan, Xianglan Li, et al. (2017) Satellite data based estimation of methane emissions from rice paddies in the Sanjing plain in northeast China. *PLoS One* 12(6):1–16.
3. Gang Liu, Haiyang Yu, Guangbin Zhang, Hua Xu and Jing Ma (2016) Combination of wet irrigation and nitrification inhibitor reduced nitrous oxide and methane emissions from a rice cropping system. *Environmental Science and Pollution Research* 23(17):17426–17436.
4. Xianfang Fan, Haiyang Yu, Qinyan Wu, Jing Ma, Hua Xu, et al. (2016) Effects of fertilization on microbial abundance and emissions of greenhouse gases (CH₄ and NO₂) in rice paddy fields. *Ecology and Evolution* 6(4):1054–1063.
5. Guangbin Zhang, Haiyang Yu, Xianfang Fan, Yuting Yang, Jing Ma, et al. (2016) Drainage and tillage practices in the winter fallow season mitigate CH₄ and NO₂ emissions from a double-rice field in China. *Atmospheric Chemistry and Physics* 16:11853–11866.

Biography

Jing Ma has her expertise in greenhouse gases emissions and mitigation mechanisms in agriculture

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