

控释肥及其与尿素配合施用对水稻生长期 $N_2O$ 排放的影响纪洋<sup>1,2</sup>, 张晓艳<sup>1</sup>, 马静<sup>1,2</sup>, 李小平<sup>1</sup>, 徐华<sup>1\*</sup>, 蔡祖聪<sup>1</sup><sup>1</sup>中国科学院南京土壤研究所土壤与农业可持续发展国家重点实验室, 南京 210008; <sup>2</sup>中国科学院研究生院, 北京 100049**Effects of applying controlled-release fertilizer and its combination with urea on nitrous oxide emission during rice growth period.**JI Yang<sup>1,2</sup>, ZHANG Xiao-Yan<sup>1,2</sup>, MA Jing<sup>1,2</sup>, LI Xiao-ping<sup>1</sup>, XU Hua<sup>1</sup>, CAI Zu-cong<sup>1</sup><sup>1</sup>State Key Laboratory of Soil and Sustainable Agriculture, Institute of Soil Science, Chinese Academy of Sciences, Nanjing 210008, China;<sup>2</sup>Graduate University of Chinese Academy of Sciences, Beijing 100049, China

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**摘要** 通过田间试验, 采用静态箱法研究相同施氮量条件下, 施用尿素、控释肥及尿素与控释肥配施(尿素与控释肥以3:7配合施用)对稻田 $N_2O$ 排放的影响。结果表明: 与单施尿素处理相比, 配施处理和控释肥处理水稻生长期 $N_2O$ 排放量分别减少40.4%和59.6% ( $P<0.05$ ), 其中烤田期分别减少65.1%和83.9%; 与配施处理相比, 施用控释肥处理 $N_2O$ 排放量略微减少 ( $P>0.05$ ), 其中烤田期减少53.9%。施用控释肥可增加水稻产量, 与尿素处理相比, 施用控释肥和配施处理水稻产量分别增加7.8%和9.8% ( $P>0.05$ )。施用控释肥使土壤无机氮峰值出现时间延后, 烤田期 $N_2O$ 排放减少。水稻生长期 $N_2O$ 排放通量与土壤氧化还原电位(Eh)和土壤温度均无明显相关性 ( $P>0.05$ )。

**关键词:** 控释肥 尿素  $N_2O$  烤田 稻田

**Abstract:** By the method of static chamber, a field experiment was conducted to study the effects of applying controlled-release fertilizer (CRF) and its combination with urea on the  $N_2O$  emission during rice growth period. Four treatments, *i.e.*, no fertilization (CK), urea (U), urea and CRF with a ratio of 3:7 (U+C), and CRF (C) were installed, and the N application rate in treatments U, U+C, and C was the same. Compared with treatment U, treatments U+C and C decreased the  $N_2O$  emission during rice growth season by 40.4% and 59.6%, and decreased the emission at midseason aeration stage by 65.1% and 83.9%, respectively ( $P<0.05$ ). Compared with that in treatment C, the  $N_2O$  emission in treatment U+C had a slight decrease, and decreased by 53.9% at midseason aeration stage. Applying CRF increased rice yield, and the increment in treatments C and U+C was 7.8% and 9.8%, respectively, as compared to treatment U. Applying CRF delayed the peak time of soil inorganic nitrogen concentration, resulting in the reduction of  $N_2O$  emission at midseason aeration stage. During rice growth season, no significant correlation was observed between  $N_2O$  flux and soil Eh or soil temperature.

**Key words:** controlled-release fertilizer (CRF) urea  $N_2O$  midseason aeration rice field**引用本文:**. 控释肥及其与尿素配合施用对水稻生长期 $N_2O$ 排放的影响[J]. 应用生态学报, 2011, 22(08): 2031-2037.

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[1] 宋旭旭, 郑成淑, 孙霞, 马海燕. 控释肥对菊花叶片叶绿素荧光特性及观赏品质的影响[J]. 应用生态学报, 2011, 22(07): 1737-1742.

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