

综合评述

## 二氧化碳浓度增高对稻、麦品质影响研究进展

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**摘要** 作物品质的形成是品种遗传特性和环境条件综合作用的结果. 一般认为大气中CO<sub>2</sub>浓度增高将对作物品质产生重要影响. 本文分别从蛋白质与氮含量、微量元素以及其他品质性状等3个方面综述了国内外关于CO<sub>2</sub>浓度增高对水稻、小麦品质影响的研究进展, 强调了该领域研究的必要性和紧迫性, 并提出了研究的重点内容及主要方向. 主要包括: 大气中CO<sub>2</sub>浓度增高对水稻、小麦品质的直接影响及品种间的差异; 大气中CO<sub>2</sub>浓度增高及其与其它气候因子协同作用对水稻、小麦品质的综合影响及其指标量化; 大气中CO<sub>2</sub>浓度增高及气候变化对水稻、小麦品质形成过程的影响机理; 适应CO<sub>2</sub>浓度增高的水稻、小麦品质改良育种的方向与策略; 适应CO<sub>2</sub>浓度增高的水稻、小麦品质改良的综合生产技术体系和分子标记及转基因技术在水稻、小麦品质改良育种方面的应用.

**关键词** [水稻](#) [小麦](#) [品质](#) [二氧化碳浓度增高](#) [气候变化](#)

分类号

## Effects of CO<sub>2</sub> enrichment on grain quality of rice and wheat: a research review

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### Abstract

Crop grain quality is mainly depended on variety's genetic characteristics and environmental conditions, while elevated CO<sub>2</sub> concentration in atmosphere, one of the main factors resulting in global climate change, would have a significant effect on crop grain quality. In this paper, the research progress on the effects of CO<sub>2</sub> enrichment on rice and wheat grain quality was summarized from the aspects of protein and nitrogen contents, trace elements, and other characters, emphasized the necessity and urgency of the study in this field, and pointed out the key directions and contents of further study, *i. e.*, (a) direct effects of CO<sub>2</sub> enrichment on rice and wheat grain quality and their differences for different varieties, (b) integrated effects of CO<sub>2</sub> enrichment and other climate factors on rice and wheat grain quality and their quantitative indices, (c) action mechanisms of CO<sub>2</sub> enrichment and other climate factors on rice and wheat grain quality formation, (d) long-term directions and strategies of rice and wheat breeding in quality improvement to adapt climate change, (e) integrated planting technology systems in quality improvement for adapting climate change, and (f) application of molecule-marker and gene-transfer in rice and wheat breeding for quality improvement.

**Key words** [rice](#) [wheat](#) [quality](#) [CO<sub>2</sub> enrichment](#) [climate change](#)

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