

研究论文

## CO<sub>2</sub>浓度增加对C<sub>3</sub>、C<sub>4</sub>作物生理特性影响的实验研究

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**摘要** 通过对C<sub>3</sub>小麦、大豆、大白菜和C<sub>4</sub>玉米在不同CO<sub>2</sub>浓度(350×10<sup>-5</sup>、500×10<sup>-6</sup>、600×10<sup>-6</sup>、700×10<sup>-6</sup>)条件下的生长模拟实验和生理特性研究,表明,CO<sub>2</sub>浓度增加,促使作物光合速率增长,光合时间略有延长,光补偿点明显下降,蒸腾系数减小,叶气温差增大,叶温升高。700×10<sup>-6</sup>和500×10<sup>-6</sup>比350×10<sup>-6</sup>小麦光合速率分别增长30.7%和11.7%,大豆增长63.4%和42.7%,大白菜增长68.0%和39.0%,玉米增长15.7%和4.7%,C<sub>3</sub>作物比C<sub>4</sub>反应明显;蒸腾系数小麦下降14.3%和7.7%,大白菜下降27.1%和23.1%,玉米下降16.8%和10.4%。

**关键词** [CO<sub>2</sub>增加](#) [实验](#) [作物](#) [生理特性](#)

分类号

## The Experimental Study of the Effects of CO<sub>2</sub> Concentration Enrichment on Physiological Feature of C<sub>3</sub> and C<sub>4</sub> Crops

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**Abstract** The experimental study in different CO<sub>2</sub> concentration conditions (350×10<sup>-6</sup>, 500×10<sup>-6</sup>, 600×10<sup>-6</sup>, 700×10<sup>-6</sup>) for C<sub>3</sub> wheat, soybean, Chinese cabbage and C<sub>4</sub> maize showed that as CO<sub>2</sub> concentration went up, then photosynthetic rate was increased, photosynthetic period of time was extended, but light compensation point and transpiration ratio were decreased, the difference between leaf and air temperature, as well as leaf temperature rise. Compared with 350×10<sup>-6</sup> treatment, the increasing rate of photosynthetic rate were 30.7% and 11.7% for wheat, 63.4% and 42.7% for soybean, 68.0% and 39.0% for Chinese cabbage, 15.7% and 4.7% for maize; the decreasing rate of transpiration ratio were 14.3% and 7.7% for wheat, 27.1% and 23.1% for Chinese cabbage, 16.8% and 10.4% for maize at 700×10<sup>-6</sup> and 500×10<sup>-6</sup> treatments.

**Key words** [CO<sub>2</sub> enrichment](#) [Experiment](#) [Crop](#) [Physiological feature](#)

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