

### UV-B辐射增强对不同大麦品种生理特性的影响

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#### Effect of Enhanced Ultraviolet-B Radiation on Physiological Properties of Different Cultivars of Barley

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摘要

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**摘要** 通过大田试验,研究了UV-B辐射增强对不同生育期3个大麦(*Horeum vulgare*)品种光合和蒸腾生理特性的影响。试验设对照(自然光)和辐射增强(辐照强度 $14.4 \text{ kJ} \cdot \text{m}^{-2} \cdot \text{d}^{-1}$ )2个UV-B辐射水平。结果表明,UV-B辐射增强明显抑制大麦光合作用和蒸腾作用。与对照相比,UV-B辐射增强可降低叶片叶绿素含量、气孔导度、净光合速率和蒸腾速率,但对胞间 $\text{CO}_2$ 摩尔分数基本没有影响。不同大麦品种对UV-B辐射增强响应的敏感性存在差异,单2号对UV-B辐射增强较为敏感,而苏啤4号较不敏感。

**关键词:** 大麦 品种 UV-B辐射 净光合速率 气孔导度 胞间 $\text{CO}_2$ 摩尔分数 蒸腾速率 叶绿素含量

**Abstract:** A field experiment was conducted to investigate effects of enhanced ultraviolet-B(UV-B)radiation on physiological characteristics, e.g. photosynthesis and transpiration, of different cultivars of barley. The experiment was designed to have two levels of UV-B radiation, i.e. enhanced UV-B( $14.4 \text{ kJ} \cdot \text{m}^{-2} \cdot \text{d}^{-1}$ ) and ambient UV-B, and conducted at the Agro-Meteorological Station, Nanjing University of Information Science and Technology, Jiangsu Province, China. Results show that enhanced UV-B obviously depressed photosynthesis and transpiration in all the barley cultivars. Compared with control, enhanced UV-B radiation significantly decreased chlorophyll content, stomatic conductance, net photosynthetic rate and transpiration rate, but generally had no effect on intercellular  $\text{CO}_2$  concentration in the leaves of the plants. However, the plants varied in sensitivity to UV-B radiation from cultivar to cultivar. Cultivar Dan #2 was more sensitive than Cultivar Su #4.

**Keywords:** *Horeum vulgare* cultivar ultraviolet-B radiation net photosynthetic rate stomatic conductance intercellular  $\text{CO}_2$  concentration transpiration rate chlorophyll content

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