果 树 学 报 2017,34(7):835-842
Journal of Fruit Science

DOI:10.13925/j.cnki.gsxb.20160414

不同光质对‘春美’桃光合特性和果实品质的影响

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摘 要:【目的】研究不同光质对桃树叶片光合特性和果实品质的影响。【方法】以露地‘春美’桃为试验材料,分别对试验树罩红、蓝、绿、白4种不同颜色的薄膜,测定透过薄膜的光质、叶绿素含量、光合特性和果实品质。【结果】绿膜处理的叶绿素含量最高,白膜处理下最低。红膜和白膜处理的净光合速率显著高于蓝膜和绿膜。蓝膜的叶绿素荧光中F_0、F_m和F_v/F_m参数最高,白膜最低。同时白膜处理下果实着色最好,绿膜处理下的可溶性糖含量最高,红膜处理下的可滴定酸含量最高,蓝膜处理下的可溶性蛋白含量最高,白膜处理下的维生素C含量最高。【结论】白膜处理果实着色最好,绿膜可提高果实可溶性糖含量。

关键词:桃;光质;光合特性;品质

中图分类号:S662.1 **文献标志码**:A **文章编号**:1009-9980(2017)07-0835-08

Effects of light quality on photosynthetic characteristics and fruit quality of ‘Chunmei’ peach

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Abstract:【Objective】Photosynthesis is the most important chemical reaction on the earth, providing food for all living organisms. Light is the driving force of photosynthesis. Light quality regulates plant growth, photosynthesis, morphogenesis, metabolism and gene expression. The effects of light quality on photosynthetic characteristics, fluorescence characteristics and fruit quality of peach (*Prunus persica* L.) were studied in plants grown under films of different colors in order to select films that promote fruit growth and fruit quality.【Methods】Five-year-old ‘Chunmei’ peach trees grown in an open field in Baoding were selected as the experimental materials. Red, blue, green and white films with a thickness of 0.15 mm were tested. The colored films were laid on the stent, covering the entire trees with room for growth. Filters were set in the films 40 cm from the ground to promote air circulation and to prevent vapor condensation inside the films. The treatments started from one week after fruit set and continued until fruit ripened, when the covering films were removed. Light transmittance of the films was measured. Leaf chlorophyll content, photosynthetic characteristics and chlorophyll fluorescence were measured after 30 days of treatment. The appearance and intrinsic quality of ripe fruit were determined. The experimental data were processed and analyzed statistically using Microsoft Excel and DPS7.05.【Results】The light through the white film had the highest light gray values at various wavelengths. The peak light gray value of light through the red film appeared between 580-620 nm corresponding to the orange light. The light through the blue film had a peak gray value at 450-490 nm, corresponding to the blue light. Green film generated a light with a peak light gray value at 520-580 nm, which is the green light. Chlorophyll a, chlorophyll b and chlorophyll a+b contents changed consistently and were in a descending order of green film> blue film> red film> white film.

收稿日期:2016-12-21 接受日期:2017-04-05

基金项目:现代农业产业技术体系建设专项(CARS-31-3-02)

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