Effects of Above-the-Bag Shading on Plant Growth and Fruit Production of the Bag Cultivated Hami-melon (*Cucumis melo* 'Aurora') in the Facility during Summer and Autumn in Yilan [1]

Wen-Hwa Lin[2] Kuan-Rong Lai[3] Chi-Hsiang Hsieh[4]

Abstract

This study investigated the effects of above-the-bag shading at different growth stages on the growth and fruit quality of 'Aurora' Hami melon (*Cucumis melo* 'Aurora') bag-cultivated during the summer and autumn seasons in Yilan, with the goal of providing cultivation strategies to mitigate heat stress. The trials included three treatments: plants accepted above-the-bag shading applied 8 days (T1), 16 days (T2) and 24 days after planting (T3), and plants with non-shaded as check (CK). The study examined the effects of each treatment on plant growth, fruit yield, and fruit quality. Results showed that the T1 treatment promoted an increase in fresh weight, stem length, and leaf area of the plants, while the T2 treatment achieved the best results in terms of fruit weight and yield, with single fruit weight reaching 1,452 g, significantly higher than the other treatments. The estimated yield was 21,795 kg·ha^{-1}, indicating that the above-the-bag shading starting 16 days after planting was beneficial for fruit growth. In contrast, the T3 treatment, which was shaded 24 days later, had limited effects on the plants and fruits, showing similar results to the check. Regarding fruit quality, the middle-section flesh sugar content of fruits of T1 and T2 treatments was slightly lower than that of the check, suggesting that early shading may affect sugar accumulation. However, the sugar content in fruits across all treatments remained within a commercially competitive range. In conclusion, during the high-temperature summer and autumn seasons in Yilan, it is recommended to apply above-the-bag shading 8 to 16 days after planting to improve the weight and yield of 'Aurora' Hami melons, enhance plant growth under heat stress, and significantly boost overall production efficiency.

Keywords: 'Aurora' Hami melon, shading period, high temperature stress

---

1. Research Article No.317 of Hualien District Agricultural Research and Extension Station.
2. Associate researcher, Lan-Yang Branch Station, Hualien DARES.
3. Former contract-based assistant, Lan-Yang Branch Station, Hualien DARES.
4. Contract-based assistant, Lan-Yang Branch Station, Hualien DARES.