

# Effects of Fertilization on the Yield and Antioxidant Capacity of Leafy Sweet Potato<sup>1</sup>

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## Abstract

The leafy sweet potato varieties ‘Taoyuan No.2’ and ‘Tainung No.71’ were used to study the effects of four fertilizing treatments, including cultivation with full-quantity chemical fertilizer, full-quantity organic fertilizer, half-quantity organic fertilizer, and only using pre-planting organic fertilizer, on the yield and antioxidant capacity. The results showed that application half-quantity organic fertilizer on ‘Taoyuan No.2’ and ‘Tainung No.71’ leafy sweet potato got equal yield compared to those with full-quantity chemical fertilizer, and it’s more cost-effective to fertilize for organic farming. The ferric reducing antioxidant power (FRAP), scavenging DPPH free radical ability, and total phenolics of two leafy sweet potato varieties fertilized with only using pre-planting organic fertilizer or half-quantity organic fertilizer were equal, even higher than those with full-quantity chemical fertilizer. But the change pattern between antioxidant capacity, total phenolics and fertilizer levels of two experimental years was not the same. It might be due to the effects of different environmental climate factor. We suggested that it’s more effective for organic farming to cultivate leafy sweet potato in the PE-house with half-quantity organic fertilizer to get good yield and antioxidant capacity. The pattern of change in antioxidant capacity of leafy sweet potato was the descending type showed the antioxidant capacity declined during leaf senescence.

Key words: leafy sweet potato, fertilization, yield, antioxidant capacity, total phenolics.

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