

Effect of Nitrogen Fertilizer and Shading on the Growth of *Tetragonia tetragonoides* (Pallos) Kuntze in Summer

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Abstract

Tetragonia tetragonoides (Pallos) Kuntze, a member of Tetragoniaceae, is an annual edible herb with taste similar to common spinach. In Taitung area, *T. tetragonoides* grows well during cool season but decays quickly when summer season begins. This phenomenon is different from that reported in other countries. *T. tetragonoides* may be sensitive to stronger radiation and higher temperature of tropical summer in Taitung area located in low latitude. To evaluate the growing performance and oxalate content of *T. tetragonoides* during summer season in Taitung, the experiment was conducted in the summer of 2017 in a greenhouse of Taitung DARES applied with different nitrogen application rates and shading. The result showed no significance of all characteristics among different nitrogen application rates. However, SPAD of leaves, total fresh weight, weight of edible part, ratio of edible part and specific leaf area (SLA) had significant difference among shading treatments. All characteristics besides ratio of edible part and SLA, declined significantly with increased shading. Oxalate content of edible part from different treatments ranges between 366 and 874 mg 100 g⁻¹, and the trend of declined oxalate content with increased shading was observed. In conclusion, shading impacted significantly on the growing performance of *T. tetragonoides* during summer in Taitung. Increased shading reduced total biomass and edible portions, but enhanced vegetable quality according to higher ratio of edible part and SLA and lower oxalate content.

Keywords: *Tetragonia tetragonoides* (Pallos) Kuntze, Nitrogen Fertilizer, Shading

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