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Effects of High Temperature on Photosynthesis in Mung Bean (*Vigna radiata*)

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[Introduction]

The growth and physiological conditions of plants change depending on the environment. Due to climate warming, the temperature in Korea is expected to increase by 1.7°C compared to the past 100 years, and the number of days of temperatures above 33°C is expected to triple from 8.8 days to 26.4 days. In this study, to know the effects of high temperature on mung beans, we investigated the growth and physiological changes of mung beans affected by high-temperature stress.

[Materials and Methods]

In 2021, high-temperature treatment was performed using the temperature gradient greenhouse (2.2m × 25m × 2.5m) in *V. radiata*, and the rain shield greenhouse was placed to control at the Southern Crops Department of Rural Development Administration (Miryang). The mung bean cultivar ‘Dahyeon’ was sown on June 30th and cultivated in Wagner port(1/2,000). After being treated at high temperatures for 3, 6, and 9 days, they have been checked the photosynthesis. The temperature gradient greenhouse was designed to maintain a high temperature of T1: 1 to 2°C, T2: 2 to 4°C, T3: 4 to 5°C, and T4: 5 to 6°C, as a maximum temperature standard, relative to the rain shield greenhouse. The growth characteristics of photosynthesis in mung bean were investigated before and after treatment, and the quantitative characteristics investigation was conducted after harvest.

[Results and Discussion]

The photosynthetic assimilation was measured after high temperature stress experiments of mung bean ‘Dahyeon’ during the growing season in the temperature gradient greenhouse. Although there is no significance, photosynthetic assimilation and stomatal conductivity tended to decrease from T1 to T4 after high-temperature treatment for 3, 6, and 9-day periods. The longer the high-temperature treatment period, the lower the photosynthetic assimilation. It was confirmed that high-temperature adversely affected photosynthetic assimilation.

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