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Changes in carotenoid, free amino acid and proline contents in Chinese cabbage (*Brassica rapa*) in response to drought stressBaek Song Kang¹, Rayhan Shawon¹, Ho Cheol Kim¹, Sang Gyu Lee², Sung Kyeom Kim², Hee Ju Lee², Jong Hyang Bae¹ and Yang Gyu Ku¹¹Wonkwang University, Republic of Korea²National Institute of Horticultural and Herbal Sciences, Republic of Korea

Under abnormal climate conditions, due to the climate change, vegetable crops grown in the open field may encounter unfavorable growth conditions, resulting in physiological disruption, which may lead to economic damage. Chinese cabbage grown in the autumn season is confronted with drought conditions in a certain period, especially at an early growth stage after planting. The effects of drought stress on plant growth characteristics as well as carotenoid, free amino acid and proline contents were investigated in Chinese cabbage. The plant material used in this study was “Bool-am No. 3” Chinese cabbage. Chinese cabbage seeds were germinated, and all seedlings were transplanted into plastic containers (22 cm diameter×23 cm high) containing a commercial growth medium, followed by control and drought treatments. The soil water content was measured and maintained at 10% for the drought-stressed plants and at 30% for the control plants, for 3 weeks. The results showed that plant growth parameters were lower in the drought-stressed plants than in the control plants. The carotenoid and proline contents were unaffected in Chinese cabbage by drought treatment. The total free amino acid content tended to decrease in both drought-stressed and control plants over time; however, the decrease was greater in the drought-treated plants than in the control plants over the three week period. Consequently, the total free amino acid content was found to be lower in the drought-stressed plants than in the control plants.

Biography

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