Night Temperature Control during Summer Season Cultivation of *Chrysanthemum morifolium*

Ah Ram Cho, Ji Woo Byun, and Yoon Jin Kim*
Department of Horticulture, Biotechnology and Landscape Architecture, Seoul Women's University, Seoul 01797, Korea

High temperature during summer season decreases flower quality and delays floral development in chrysanthemum. To reduce energy consumption for cooling in greenhouses, only nighttime temperature can be controlled. Our objective was to identify flowering and photosynthetic responses of *Chrysanthemum morifolium* ‘Swifty Rosso’. Daytime temperature was 35°C depended on the nighttime temperatures (NT) of 20, 23, 26, and 29°C. The photoperiod was maintained for 10 h from 08:00 to 18:00 HR with PPF of 225 ± 25 µmol·m⁻²·s⁻¹. Flowering percentage was 100, 100, 20, and 0% in the plants grown at NT of 20, 23, 26, and 29°C, respectively. Among the NT of 20, 23, and 26°C, flowering delayed in the plants grown at NT of 26°C than those grown at 20 and 23°C. Size of ray floret was the largest in the plants grown at NT of 20°C than those grown at 23 and 26°C. $L^*$ increased in the plants grown at NT of 26°C than those grown at 20 and 23°C indicating that the color of ray floret grown at NT of 26°C was paler and less vivid. Highest net photosynthesis rate was observed in the plants grown at NT of 20°C among the NT treatment. This results suggested that delay of flowering and quality degradation due to daytime high temperature can be solved by nighttime temperature control. To produce high-quality chrysanthemum at high temperature season, nighttime temperature should be controlled below 23°C in *Chrysanthemum morifolium* ‘Swifty Rosso’. (This work was carried out with a grant (NRF-2018R1A2B6007834) from Nation Research Foundation of Korea.)

T. 02-970-5620, yj1082@swu.ac.kr