Effects of developmental stages on postharvest performance of White Crane Orchid (*Calanthe triplicata*) inflorescences

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Abstract

White crane orchid (*Calanthe triplicata*) is one of the native orchids in Taiwan. It features pure white flowers, a unique flowering pattern, an elegant inflorescence, and it is of high ornamental value. In order to evaluate the feasibility of white crane orchid for cut flower production, we characterized the growing and blooming of the white crane orchid inflorescence during its vase life in deionized water. Up to 30 florets on each rachis bloomed from the bottom to the top on the raceme of the white crane orchid. The floret at the lowest position began to wilt after more than 20 florets bloomed. The early senescence symptoms of a floret were the yellowing labellum and blackening anther cap. To investigate the flower longevity and the overall ornamental value of inflorescences, they were harvested when bearing 0, 11, and 20 opened florets. The inflorescences in the three developmental stages had a vase life of 22 days, 9 days and 6 days, respectively, in deionized water at 25 °C. Although they have the longest vase life, inflorescences that were harvested in the budding period (0 opened florets) had a relatively low ornamental value; conversely, the ornamental value of the inflorescences harvested in the blooming period (20 opened florets) was the highest, followed by that at the stage with 11 florets. The application of ethylene action inhibitors, such as 1-methylcyclopropene (1-MCP) or silver thiosulfate (STS), to the inflorescences harvested in the blooming period (20 opened florets) has extended their vase life from 6 days to 8 days and to 10 days, respectively.