

Title Variation in ethylene production among carnation new cultivars
Author A. Ebrahimzadeh, M. Jamilena, S. Jiménez and M.T. Lao
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Abstract

Carnation cultivars differ in ethylene production which is a determining factor on the vase life of cut flowers. Ethylene production in Carnation (*Dianthus caryophyllus* L.) flowers of nine different cultivars: '2001 P 19', '2001 VE3', 'Black Baccara', 'Cano', 'Dover', 'Hugo', 'Lorenzo', 'Varna' and 'W 1002 R' were investigated. All flowers were harvested at the same development stage and stems were re-cut to 35 cm length, placed in distilled water and held under controlled environmental conditions of 12 h light, 12 h darkness at $21\pm 1^{\circ}\text{C}$ and 50-60% relative humidity. For all cultivars, ethylene production were measured daily throughout experiments. Notable differences were observed in both ethylene concentration and production time after harvest among the nine cultivars. In all cultivars, ethylene production was very low during first 10 days but then some cultivars such '2001 VE3', 'Black Baccara', 'Hugo' and 'Varna' showed climacteric behaviour in ethylene production at days 11, 15, 17, 18 and reached a maximum 2 days after. While 'W 1002 R' 'Dover' flowers produced only trace amounts of ethylene until the end of their long vase life, highest ethylene concentration was found in the cultivar '2001 VE3' with shortest vase life (12.3 days). Other cultivars such 'W 1002 R' and 'Dover' produced low level of ethylene (8-13 folds less than '2001 VE3') with 24.5 and 28.3 days vase life, respectively. Maximum ethylene production coincided with the appearance of visible symptoms of senescence of the flowers such as petal in-rolling and wilting.