

O-44 (20)**STOMATA: KEY STRUCTURES FOR KEEPING QUALITY OF CUT FLOWERS**

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Cut flowers are usually grown in greenhouses characterized by high humidity and long lighting periods (growers extend the duration of lighting period during greenhouse production of some cut flowers by using of supplementary lighting especially in winter time). Desiccation due to water loss is the main problem in the industry of cut flower production. Although plants grow well in common greenhouse conditions, the produced flowers under such environmental conditions have limited control over their water loss, leading to uncontrolled transpiration and decreased leaf water content in postharvest stage. Consequently, huge decrease in leaf water content results in shortened vase life of cut flowers. Usually plants close their stomata when they expose to unfavorable conditions (drought, low relative humidity, desiccation and darkness). Under common greenhouse conditions, stomata stay open during the growth of cut flowers, however, our studies in rose and chrysanthemum showed that some environmental conditions (e.g. water availability in root medium, low vapour pressure deficit and extended lighting period) can induce fundamental changes in stomatal morphology and functioning during the growth of the plants, leading to decreased ability to control water loss when environmental conditions are not favorable for stomatal opening (postharvest stage). Under such circumstances, decreased leaf water content in postharvest stage would not result in full stomatal closure (stomatal malfunctioning), causing fast wilting of cut flowers. The result of our study showed that the problem of stomatal malfunctioning is because of a decline in abscisic acid content of the leaf due to increased activity of ABA-hydroxylases which are encoded by *CYP707A1* and *CYP707A3* genes. However, by changing root media, environmental conditions and nutrient solution it would be possible to overcome the problem of stomatal malfunctioning in postharvest stage.

Keywords: Abscisic acid, cut flowers, greenhouse, stomata