

O-53 (133)**PHYSIOLOGICAL AND MOLECULAR MECHANISM OF SENESCENCE AND AGEING OF ORNAMENTAL PLANT ORGANS**

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Senescence, as the last stage of plant life cycle, is under the control of endogenous and exogenous factors affecting growth development of plant. Plant organs such as fruits, leaves, flowers and petals are condemned to aging and abscission, due to exposing to stress conditions or misbalancing plant growth regulators levels. An arrangement of successive changes in cellular structure, biochemical metabolism and physiological behavior are occurred to progress and regulate this phenomenon, finally leads to cell death. Clarifying physiological and molecular mechanisms of senescence could shed light on this complex phenomenon, and it would be feasible to manipulate some pathways to extend life span of ornamental crops. Application of biotechnological approaches and studies on mutant model plants clarified the roles of ethylene and other plant hormones in accelerating or delaying senescence and abscission. Controlling environmental conditions and chemicals for blocking components of ethylene biosynthesis and blocking ethylene receptors have been applied during last decades. Genetic engineering has been considered as new strategies in plant breeding to improve postharvest quality of horticulture crops. In this review, current understanding of senescence and abscission mechanisms, genes involved in this process and advanced approaches relating to genetic engineering in fields of gene transformation and genome-editing are presented.

Keywords: Ethylene, Gene expression, Genetic engineering, Gene suppression, Genome-editing, Longevity