Title Programmed cell death and postharvest deterioration of horticultural produce

Author Ernst J. Woltering

Citation Abstracts Book, 6th International Postharvest symposium, 8-12 April 2009, Antalya, Turkey. 256 pages.

Keyword Deterioration; horticulture; postharvest

Abstract

Programmed cell death (PCD) is a process where cells or tissues are broken down in an orderly and predictable manner, whereby nutrients may be re-used by other cells, tissues or plant parts. Currently two main types of PCD are recognised in plants: autophagic and non-lysosomal PCD. Apoptosis, which is accompanied by digestion of (parts of) the dying cells in the lysosome of other cells, has not (yet) been observed in plants. Dying cells of either type of PCD show characteristic features such as shrinkage of the cytoplasm and compaction and/or fragmentation of the nucleus. In plants PCD is involved in many developmental and formative processes including xylogenesis, reproductive events, formation of leaf perforations and in the senescence of flowers and leaves. PCD is involved in the response to adverse environmental conditions such as chilling and heats, exposure to toxic chemicals or UV radiation and as a result of oxygen depletion. In addition, PCD is involved in the 'stance) reaction to pathogens such as bacteria and fungi. The concept and mechanism of PCD are discussed with emphasis to involvement in postharvest senescence and deterioration of horticultural produce.