

RECENT ADVANCES IN POSTHARVEST PHYSIOLOGY OF CARNATIONS

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More advances have been made in recent years in developing practical technics for postharvest handling and in understanding the basic physiology of flower senescence in carnations than in any other flower.

Three very important practical developments were made, which have already been commercially applied:

1. Postharvest pulse with STS that blocks ethylene action and greatly extends flower longevity.
2. Treatment with solution containing high sugar concentrations to promote full opening of flower buds in spray carnations and enable opening of standard carnations at tight bud stage.
3. Long term storage of both standard and spray carnations.

Recent advances in better understanding the basic senescence physiology of carnation flowers were made in the following areas:

1. Elucidating the sites of activities of the steps of ethylene biosynthesis and metabolism in the various parts of the flower, and the involvement of other hormones (cytokinins, auxins and abscisic acid) in the regulation of ethylene synthesis and the sensitivity to ethylene.
2. Partial isolation and identification of the ethylene forming enzyme (EFE) in membrane fractions of carnation petals.
3. The interorgan interaction of the various parts of the carnation flower in controlling senescence.
4. Changes in biophysical and biochemical properties of petal membranes during aging as related to ethylene and water stress. These and other points will be reviewed and discussed also in relation to carnation breeding.