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M-26 Polyphenoloxidase and pectinmethylesterase activities in pear after controlled atmosphere storage

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The selection of the best composition of controlled atmosphere (CA) for fresh horticultural products needs the evaluation of several parameters. The objective of this study was the evaluation of enzyme activities (polyphenoloxidase, PPO EC 1.14.18.1; and pectinmethylesterase, PME EC 3.1.1.11) in pears after long-term storage in CA. The fruits were picked and stored in four different controlled atmosphere (CA) conditions or in normal atmosphere (NA). After 9 months of storage fruits were removed from storage and at different periods of exposure to air at room temperature, fruits were peeled, cut, frozen and stored for the enzymatic assays. A positive correlation was established between the two enzyme activities for some storage compositions. For the fruits stored in the 2% O₂ + 1.5% CO₂ composition, when the activity of PPO decreased the activity of PME increased ($r^2 = 0.99$). For NA no clear tendency or correlation were found between the two enzymes. The possible correlation and the tendency of the enzyme activities can provide information about the normal or abnormal metabolic processes of the fruit and eventually, the physiological disorders that can occur after long-time storage.

Key Words: PPO, PME, pear fruit, controlled atmosphere