Abstract:

The effect of modified atmospheres (MA) on strawberry aroma has been studied. Emission of volatile compounds and alcohol acyltransferase activity, key enzyme involved in ester biosynthesis, were selected as indices of aroma quality. Strawberries (Fragaria x ananassa cv. Camarosa) were packed in polyethylene terphthalate (PET) punnets filmed with polypropylene (PP) and stored at different temperatures to generate different MA conditions. Changes in volatile composition and AAT activity were measured during storage. When the internal atmosphere of the baskets reached CO_2 concentrations above 25% and O_2 concentrations below 2%, strawberry fruit developed an unusual aroma pattern in which methyl and ethyl acetate were the major compounds and only minor amounts of other esters were found. A parallel increase in AAT activity of these fruits was also observed. These alterations in AAT and aroma profile could be due to high CO_2 and/or low O_2. Results obtained in further experiments with several CA conditions: high CO_2 levels combined with 21% O_2, low O_2 levels combined with 0.03% CO_2, and high O_2 combined with high CO_2, suggest that a high CO_2 concentration is the main factor responsible for changes in AAT activity and volatile composition of MA stored strawberries.