

but suggested an interaction between O₂, ethylene and respiratory rate such that, at O₂ levels above 5 kPa, the apparent Km for O₂ increased. Decay development limited storability; those packages having the highest O₂ levels were generally free from condensation and were decay - free for the greatest time period.

CAMA217

MA - PACKAGED FRUIT AND VEGETABLES – DISCREPANCY BETWEEN VISUAL AND OVERALL FRESHNESS IN GREEN PRODUCE AND RELATIONS TO PRODUCT QUALITY

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Freshness of MA - packaged fresh fruit and vegetables is the most important quality attribute for purchase and consumption. If green produce are packaged in films with too low an O₂ transmission rate (OTR) or distributed at higher temperatures or at a slower rates than expected, quality deteriorations occur that could influence product freshness. The discrepancy between visual and overall freshness occurs when green produce looks fresh but are perceived spoiled upon opening of the package. To study this discrepancy, wild rocket was packaged in L - OTR (0.65 pmols⁻¹ m⁻² kPa⁻¹) and H - OTR film (17.4 pmols⁻¹ m⁻² kPa⁻¹) and stored for 6 days at different combinations of time and temperature which influenced the quality and inside O₂ and CO₂ concentrations. The H - OTR combinations were: 1) 6 days at 2 °C; 2) 2 days at 2 °C and 4 days at 10 °C; and 3) 3 days at 2 °C and 3 days at 20 °C and the L - OTR combinations: 4) 2 days at 2 °C and 4 days at 10 °C; and 5) 4 days at 2 °C and 2 days at 20 °C. Visual freshness scores ranged from 2.7 to 11.8 and overall freshness scores from 1.3 to 12.2 on a scale from low (0) to high (15). Visual and overall freshness scores were similar for wild rocket packaged in H - OTR film but differed for wild rocket packaged in L - OTR film. The inside gas concentration in the H - OTR film ranged from 13.4 to 19.9 kPa while it was around 0.5 kPa in the L - OTR film at evaluation. Inhomogeneous colour and texture, loss of green colour, yellowing and browning of cut edges influenced the visual freshness scores of wild rocket packaged in the H - OTR film while in the L - OTR - film deterioration was first caused by changes in odour and then later changes of colour and texture. Colour and texture changes were measured by multispectral analysis in the 405 to 970 nm range. This method captured a bigger area of the sample and therefore, provided better representation of colour, than colorimeter.

CAMA218

α-FARNESENE, CONJUGATED TRIENOLS, FERMENTATIVE METABOLITES AND SUPERFICIAL SCALD IN 'CONFERENCE' PEARS AS AFFECTED BY 1-METHYLCYCLOPROPENE, INITIAL LOW OXYGEN STRESS AND CONTROLLED ATMOSPHERE STORAGE

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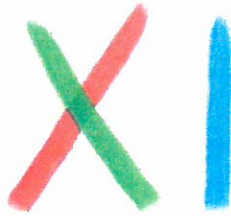
The effect of initial low oxygen stress (ILOS) on α-farnesene, conjugated trienols (CTols), fermentative metabolites and superficial scald development in 'Conference' pears was investigated. At harvest, fruit were untreated or treated with 300 ppb 1-MCP. After 4 weeks at -0.5° C, fruit were stored up to 13 weeks in air or in controlled atmosphere (CA at 2% O₂ + 0.7% CO₂) with or without ILOS (0.3 - 0.5% O₂) at -0.5 °C. ILOS was applied for 2 weeks either one time (ILOS1) or twice at 3 weeks interval (ILOS2), while monitored with fluorescence sensors (HarvestWatch™). α-Farnesene, CTols and fermentative metabolites were measured at the beginning and at the end of ILOS1 and ILOS2 in comparison with air and CA storage and after 13 weeks of storage. Scald incidence was evaluated at the end of storage after 7 days at 20 °C. On average, fruit treated with 1-MCP had lower amounts of α-farnesene and CTols and more acetaldehyde than untreated pears. α-Farnesene and CTols significantly increased with storage time in untreated and 1-MCP treated fruit. Storage atmosphere did not influence α-farnesene and CTols accumulation in untreated fruit, while the 1-MCP treated pears had more α-farnesene in ILOS1 and less in ILOS2. At the end of storage, acetaldehyde slightly decreased in the 1-MCP treated fruit, while ethanol decreased and ethyl acetate increased in untreated and 1-MCP treated fruit. Acetaldehyde was higher in air (untreated and 1-MCP), and lower in ILOS2 (1-MCP) fruit. Higher ethanol and lower ethyl acetate concentrations were found in 1-MCP treated fruit in ILOS1, but the opposite pattern was found in ILOS2. Whatever the storage atmosphere, the scald symptoms of untreated fruit were characterized by brown rather than black skin, with air - stored fruits having the highest incidence and severity. 1-MCP treated fruit developed black scald in air and in ILOS1, and brown scald in CA, ILOS1 and ILOS2, but at a lower extent than in untreated ones. ILOS2 pears showed the highest percentage of healthy fruits, irrespective of 1-MCP treatment. Our results indicated that scald development was not prevented by neither 1-MCP treatment nor by ILOS. However, ILOS2 fruit, having less α-farnesene and fermentative metabolites, showed the lowest percentage of scald.

CAMA220

MODELING QUALITY CHANGES OF MA PACKAGED ROCKET SALAD UNDER ISOTHERMAL CONDITIONS

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