Title High oxygen levels promote peel spotting in banana fruit

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Abstract

We studied the effect of high oxygen on early peel spotting in 'Sucrier' bananas held at 25 °C and 90% RH. Fruit first ripened to colour index 3–4 (about as yellow as green) and were then held in containers with a continuous gas flow of 18 ± 2 kPa (control) or 90 ± 2 kPa oxygen. High oxygen promoted peel spotting. The in vitro activities of phenylalanine ammonia lyase (PAL) and polyphenol oxidase (PPO), measured both in the whole peel and in peel spots, were lower in high oxygen than in the controls. The level of total free phenolics, both in the whole peel and in peel spots, was lower in the high oxygen treatment. Dopamine content in the peel spots decreased rapidly, earlier in the high oxygen treatments than in controls. It is concluded that peel spotting was not correlated with in vitro PAL and PPO activities. Decrease in dopamine levels correlated with peel spotting, indicating that it might be used as a substrate for the browning reaction.