

Abstract

Uneven ripening of banana peel following treatment with the ethylene antagonist 1-methyl cyclopropene (1-MCP) has been widely observed. We propose that the uneven peel ripening ('greying' of the peel) following 1-MCP treatment could be related to an imbalance in respiration pattern, with accumulation of volatile compounds such as ethanol and acetaldehyde. To investigate this as ethanol and acetaldehyde. To investigate this hypothesis, mature green banana (cv. 'Williams') were placed in plastic bags and stored at 13°C simulating shipping conditions until commercial ethylene treatment. The ethylene treatment was conducted immediately upon receipt of the fruit or 7, 14, and 21 days after harvest. 24 hours after initiating ripening with ethylene, two different temperatures (13 and 20°C). Bananas kept in air (also at 13 or 20°C) served as controls. Ethylene production, respiration rate, colour of the peel, pulp firmness, ethanol rate, colour of the peel, pulp firmness, ethanol and acetaldehyde production were regularly monitored during the experiment. In addition, the activities of alcohol dehydrogenase (ADH) and lipoxygenase (LOX) in the peel were determined. The results showed there were significant differences in respiration and ethylene production rates between treatments. These results will be discussed in relation to uneven peel ripening.