

Title Water-soaked symptom of 'Andesu' netted melon fruit does not develop under anaerobic nitrogen atmospheres during ripening

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Abstract

'Andesu' netted melon fruits (*Cucumis melo*, L.) were ventilated with pure nitrogen or air for 12 days from 35 to 47 DAA or 6 days from 47 to 53 DAA (ripe and over-ripe stages, respectively). Exposure to anaerobic nitrogen atmosphere resulted in higher acetaldehyde and ethanol concentrations, while lower sucrose concentration was recorded in the mesocarp compared with air-ventilated fruit. However, water-soaked symptom was not developed under anaerobic nitrogen atmospheres, suggesting that the formation of water-soaking mesocarp tissue does not result from increased alcoholic fermentation and/or decreased soluble sugar accumulation in the flesh. Anaerobic nitrogen atmospheres also resulted in low ethylene production, high flesh firmness, and inhibition of depolymerisation of polyuronides and non-cellulosic neutral sugars in the cell walls. The importance of increased intercellular spaces and membrane permeability on the development of water-soaked symptom was suggested.