

**Title** Modified atmosphere packaging and ethanol vapor to control decay of 'Red Globe' table grapes during storage

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### **Abstract**

The aim of this study was to determine the efficacy of several alternative postharvest treatments to sulfur dioxide (SO<sub>2</sub>) in maintaining quality and reducing fungal decay during cold storage of 'Red Globe' table grapes. Grapes were packaged in perforated polyethylene (PPE) or modified atmosphere packaging (MAP) bags (ZOEpac or Antimicrobial) with or without different grades of ethanol vapor-generating sachets (Antimold<sup>®</sup>30, Antimold<sup>®</sup>60 or Antimold<sup>®</sup>80) or a SO<sub>2</sub>-generating pad, and the grapes were kept at 0 °C and 90–95% relative humidity for 4 months. Packaging of grapes with a SO<sub>2</sub> pad in PPE or ZOEpac bags provided better control of fungal decay and stem browning than PPE or ZOEpac bags alone, PPE or ZOEpac bags with Antimold sachets or Antimicrobial bags alone. The PPE bag containing the Antimold<sup>®</sup>80 sachet was as effective as the SO<sub>2</sub> treatments in reducing the incidence of fungal decay in naturally infected and artificially inoculated grapes for 1 month. Ethanol vapor released by the Antimold sachets enhanced berry color, but caused stem browning depending on ethanol vapor concentrations in the headspace of the bags. The ZOEpac-210 bags alone resulted in significantly lower weight loss and incidence of stem browning, compared to other treatments; however, they did not reduce fungal decay or develop an appreciable level of modified atmosphere.