

Title Antifungal activity of sulfur-containing salts against the development of carrot cavity spot and potato dry rot

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Abstract

In the search for alternatives to synthetic fungicides to control postharvest disease, sulfur-containing salts were evaluated for their effects on the mycelial growth of various fungal or fungus-like pathogens and their ability to control carrot cavity spot (*Pythium sulcatum*) and potato dry rot (*Fusarium sambucinum*). Results showed that metabisulfite-containing salts provided strong inhibition of all the tested fungi. Furthermore, some sulfate-containing salts were also directly inhibitory to *P. sulcatum* (calcium sulfate and ammonium sulfate) and to *F. sambucinum* (sodium sulfate). The metabisulfite salts also provided 100% inhibition of cavity spot and dry rot at concentrations of 50 and 200 mM, respectively. Calcium sulfate and sodium sulfate also significantly reduced carrot cavity spot lesions at 50 mM and ammonium sulfate, magnesium sulfate, potassium sulfate and sodium sulfate reduced potato dry rot lesions at 200 mM. These results indicate that various sulfate and metabisulfite salts could be used to control these postharvest microorganisms.