Title Sensitivity of *Erwinia* spp. to salt compounds in vitro and their effect on the development of soft rot in potato tubers in storage

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Abstract

Several salt compounds were tested in vitro as inhibitors of *Erwinia carotovora* subsp. *atroseptica* (van Hall) Dye (*Eca*) and *Erwinia carotovora* subsp. *carotovora* (Jones) Bergey, Harrison, Breed, Hammer & Huntoon (*Ecc*), causal agents of bacterial soft rot of potato. All compounds were mixed with potato dextrose agar (PDA) to the concentrations 0.002 M, 0.02 M and 0.2 M PDA amended with sodium metabisulfite, propyl-paraben, alum, potassium sorbate, calcium propionate and copper sulfate pentahydrate were completely inhibitory at the lowest concentration (0.002 M). Studies examining the preventative and curative effects of the most effective compounds were conducted using *Ecc* (strain 71). As preventative disease control measures, tubers treated only with aluminum acetate, alum, calcium propionate, sodium bicarbonate, sodium hypochlorite or copper sulfate pentahydrate resulted in significantly ($P < 0.001$) less soft rot than the untreated control. As curative disease control measures, tubers treated with only alum, aluminum acetate, sodium hypochlorite or copper sulfate pentahydrate, resulted in significantly ($P < 0.001$) less soft rot than the untreated control. These compounds demonstrated a potential as replacements for commercially used pesticides as post-harvest disease control strategies.