

**IN VITRO ANTIFUNGAL ACTIVITY OF SELECTED GRAS SALTS AGAINST
POSTHARVEST FUNGAL PATHOGENS OF *Capsicum annuum*
(BANANA PEPPER)**

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Banana pepper (*Capsicum annuum* L.) is an economically important vegetable crop grown worldwide. Fungal diseases cause substantial postharvest losses of banana pepper. This study investigated the effect of Generally-Recognised-As-Safe (GRAS) salts; calcium chloride (CaCl₂) and potassium silicate (K₂SiO₃), on *in vitro* growth of postharvest fungal pathogens, *Colletotrichum* sp., *Fusarium* sp., *Aspergillus* sp., *Lasiodiplodia* sp. and *Pestalotia* sp., isolated from banana pepper. The direct inhibitory effect of GRAS salts on pathogen growth was tested by assessing radial growth on GRAS salt-amended potato dextrose agar (PDA) and mycelial growth in static cultures of potato dextrose broth (PDB) at 1% CaCl₂ and 800 mg L⁻¹ K₂SiO₃ concentrations with three replicates. Effect of GRAS salts on spore germination of pathogens was also tested. Treatments with CaCl₂ and K₂SiO₃ did not significantly ($p < 0.05$) reduce the pathogen growth in either PDA or PDB while CaCl₂ treatment exhibited a stimulatory effect on radial growth (cm) of *Colletotrichum* sp., *Fusarium* sp. and *Pestalotia* sp. (5.8, 5.5 and 8.5, respectively) versus their controls (5.1, 2.7 and 7.5, respectively). Treatment with CaCl₂ significantly reduced the spore germination of *Fusarium* sp. (by 37.48%) and *Aspergillus* sp. (by 67.21%) while K₂SiO₃ treatment significantly reduced the spore germination of *Fusarium* sp. (by 52.77%) against controls. The differential effects observed suggest that the efficacy of CaCl₂ and K₂SiO₃ be influenced by the specific fungal species, their developmental stage, or potential chemical interactions between calcium and silicate ions with other constituents present in PDB and PDA media. Notably, both calcium and silicate solutions, when prepared in sterile distilled water, exhibited antifungal activity, as demonstrated by the spore germination assay. These observations highlight the need for further *in vivo* investigations to gain a clearer understanding of the effects of these GRAS salts on the growth of the tested postharvest pathogens.

Keywords: Banana pepper, Calcium chloride, Fungal pathogens, Postharvest, Potassium silicate