

**Title** Control of Citrus Green and Blue Molds with Garlic Extracts  
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#### **Abstract**

Water and ethanol extracts of garlic cloves were applied to artificially inoculated citrus fruits to test their efficacy in the control of *Penicillium digitatum* and *P. italicum*, the cause of citrus green and blue mold respectively. Extracts were tested either alone, or in combination with vegetable (sunflower) cooking oil or fruit wax at the rate of (0.1% v/v), using two orange cultivars (Valencia and Shamouti), and grapefruit. Treated fruits were stored at  $10\pm 1$  °C, and 90–95% relative humidity for 30 days. All concentrations of extracts were more effective than the water control in inhibiting the growth and development of both pathogens, but were not as effective as the fungicide treatment (imazalil 500 ppm + quazatine 1000 ppm). A remarkable increase in the activity of garlic extracts was observed when extracts were mixed with oil. Consequently, the treatment comprising 1% extract plus oil was as effective (100% control) as the fungicide treatment in controlling both green and blue molds on Valencia oranges.