Effect of Chemicals on Hyphal Growth, Sporangia Production and Zoospore Germination of *Phytophthora ramorum*[1]

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Abstract

Phytophthora ramorum, causal agent of the sudden oak death, has 23 regulated hosts. Some of these, such as coast live oak, tanoak and California bay laurel, play a key role in the ecology of California forests. There is one commercially available, preventative treatment for two hosts, coast live oak and tanoak. New treatments that employ easier and cheaper application methods and protect both foliar and trunk/twig hosts are needed. Other products in the market registered to control other *Phytophthora* pathogens may be effective for controlling *P. ramorum*.

The ability of three chemicals to inhibit different stages in the life cycle of *P. ramorum* (hyphal growth, sporangia production and zoospore germination) was tested *in vitro*. The chemicals Subdue® (metalaxyl), Agrifos400® (phosphite) and Champ® (copper hydroxide) were tested at different concentrations against 12 North American *P. ramorum* isolates. Additionally, we conducted *in planta* experiments on controlling the pathogen using foliar spray on California bay laurel. Isolates varied in response to the treatment, but no isolates were tolerant to any of the chemicals. All the chemicals were effective in inhibiting all life cycle stages tested. *In planta*, copper hydroxide was very effective in controlling infection on California bay laurel leaves up to six weeks after treatment.

Key words: phosphite, metalaxyl, copper hydroxide, fungicide, California bay laurel

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