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Biocontrol of Powdery Mildew in Pepper Using AQ10 and Sulfur

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Update on progress:

We have obtained a rally-resistant strain of powdery mildew and, after some difficulty, have successfully inoculated a genotype of susceptible pepper plants to establish a working culture of the fungus. Preliminary control experiments show no damage from AQ10 or sulfur alone. Effect of AQ10 or sulfur on PM has not yet been assessed. Plants are being grown to finish all experiments (see grid, below). Target date for completion: June 2014.

Plans to finish up project:

Sporodex is no longer available. The grid of experiments has been changed to include AQ10 (*Ampelomyces quisqualis*) and sulfur in different combinations (see below).

Materials and Methods

Inoculations with *L. taurica*. Plants are being inoculated with aqueous spore suspensions of the Rally-resistant strain of *L. taurica* prepared according to Suliman et al. (1999).

Biocontrol agents and applications. AQ10 (*Ampelomyces quisqualis*) will be obtained from Ecogen Corp. (Langhorne, PA). Each will be prepared according to its manufacturer's instructions and sprayed onto plants at weekly intervals for 3 weeks.

Experimental design. The following seven treatments will be laid out in the greenhouse at Fresno State in a randomized block design (with 5 plants for each treatment block, replicated four times):

	1 (No PM control)	2 (AQ 10 alone)	3 (sulfur alone)	4 (PM + AQ10, "before")	5 (PM + AQ10, "after")	6 (PM + sulfur, "before")	7 (PM + sulfur, "after")
Powdery mildew	-	-	-	+	+	+	+
AQ10	-	+	-	+	-	+	-
				applied before PM		applied after PM	
sulfur	-	-	+	-	+	-	+
					applied before PM		applied after PM

Disease scoring and statistical analysis. The proportion of leaves infected per plant and the sporulation intensity per leaf (Lefebvre et al., (2003) will be scored twice a week starting 3 days post-inoculation. Results will be analyzed by ANOVA.

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