



2012 Southern Division Meeting Abstracts

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Distribution and molecular characterization of *Botrytis cinerea* isolates resistant to respiration inhibitors

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Botrytis cinerea Pers., is one of the most important plant-pathogenic fungi responsible for gray mold diseases on more than 230 plant species worldwide, including strawberry, one of the most widely grown fruit crops in the U.S.A. Control of gray mold disease is largely dependent on the use of fungicides; however, *B. cinerea* represents a classical high-risk pathogen to develop fungicide resistance. Several fungicides are currently labeled for gray mold control of strawberry in the Southeast, including Pristine (boscalid + pyraclostrobin). During the spring-summer 2011, two hundred and sixteen *B. cinerea* isolates were obtained from strawberry fruit with symptoms resembling gray mold disease from 11 commercial fields in North and South Carolina. Boscalid and pyraclostrobin were used separately for *in vitro* fungicide sensitivity assays based on conidial germination. Among the 216 isolates, 133 (61.6%) were resistant; 61 (28.2%) were sensitive, and 22 (10.2%) were highly sensitive to boscalid. With regard to pyraclostrobin, 144 isolates (66.7%) were resistant and 72 (33.3%) were sensitive. A total of 133 isolates were cross-resistant to both fungicides. Resistance to boscalid was correlated with two point mutations at codon 272 (H272R and H272Y), affecting the third Fe-S cluster region of the iron-sulfur protein (*sdhB*) target of SDH inhibitors. Pyraclostrobin-resistant isolates possessed a single point mutation at amino acid codon 143 (G143A) of the cytochrome *b* protein. The results of the study suggest that frequent applications of respiration inhibitor fungicides such as pyraclostrobin, azoxystrobin and boscalid have selected for resistance in strawberry fields of the Carolina's indicating that rotation with other fungicide classes need to be implemented.