



LLEIDA2014

XVII Congreso de la Sociedad Española de Fitopatología

Palau de Congressos de Lleida. La Llotja

7-10 de octubre de 2014

Libro de Resúmenes



P-194-01351

RESISTANCE TO MULTIPLE FUNGICIDES IN *Botrytis cinerea* ISOLATES FROM COMMERCIAL STRAWBERRY FIELDS IN THE EASTERN USA

Fernández-Ortuño D.¹, Grabke A.², Bryson P.K.², Li X.P.², De Vicente A.¹, Schnabel G.²

1) Instituto de Hortofruticultura Subtropical y Mediterránea La Mayora, Universidad de Málaga, Consejo Superior de Investigaciones Científicas. Departamento de Microbiología. Facultad de Ciencias. Campus de Teatinos. 29071 Málaga. España

2) School of Agricultural, Forest & Environmental Sciences. Clemson University. Clemson. SC 29634, USA

Chemical control of gray mold of strawberry caused by *Botrytis cinerea* Pers. is essential to prevent pre- and postharvest fruit decay; however, resistance to multiple chemical classes of fungicides including APs (cyprodinil), DCs (iprodione), MBCs (thiophanate-methyl), PPs (fludioxonil), QoIs (pyraclostrobin), SBIs (fenhexamid), or SDHIs (boscalid) is a well-known and well-described phenomenon in *B. cinerea* from strawberry fields in Florida, Germany, North Carolina, and South Carolina. As part of a resistance-monitoring program conducted during 2012 and 2013, a total of 1,890 *B. cinerea* isolates were collected from 10 states in the eastern USA. The isolates were analyzed for fungicide resistance using a mycelial growth assay. The overall resistance frequencies in 2012 for thiophanate-methyl, pyraclostrobin, boscalid, cyprodinil, fenhexamid, iprodione, and fludioxonil were 76, 42, 29, 27, 25, 3, and 1%, respectively. Frequencies in 2013 were 85, 59, 5, 17, 26, 2, and 1%, respectively. Isolates were resistant to either one (23%), two (18%), three (19%), four (14%), five (3%) or six (0.1%) chemical classes of fungicides in 2012. In 2013 this distribution was 24%, 29%, 26%, 8%, 2%, 0.3%, respectively, and also 0.3% (6 isolates) were resistant to all classes of fungicides. Resistance to thiophanate-methyl, iprodione, boscalid, pyraclostrobin and fenhexamid was based on target gene mutations in β -tubulin, *bos1*, *sdhB*, *cytB*, and *erg27*, respectively. Isolates were MDR1 or MDR1h dependent on sensitivity to fludioxonil and variations in transcription factor *mrr1*. Expression of ABC transporter *atrB* was highest in MDR1h isolates. The discovery of *B. cinerea* isolates resistant to all registered site-specific fungicides for gray mold control represents an unprecedented milestone of resistance development in *B. cinerea* that signals a failure of current anti-resistance management strategies.

* This work has been supported by the CSREES/USDA, under project number SC-1000642 and the Marie Curie COFUND programme U-Mobility, co-financed by the University of Malaga, the European Commission FP7 under GA No. 246550, and Ministerio de Economía y Competitividad (COFUND2013-40259).