



ISBN 978-85-66836-16-5

SENSITIVITY OF *Alternaria grandis* TO AZOXYSTROBIN, BOSCALID AND CHLOROTHALONIL¹/Sensibilidade de isolados de *Alternaria grandis* a azoxistrobina, boscalida e clorotalonil. J.P.H. MACHADO²; E.S.G. MIZUBUTI².

²Departamento de Fitopatologia, Universidade Federal de Viçosa, Viçosa, Brazil. E-mail: joao.honorato@ufv.br.

Early blight (*Alternaria grandis*) is an emergent destructive disease of potato crops in Brazil. To reduce yield losses growers have relied on multi and single-site fungicides. We assessed the sensitivity of *A. grandis* isolates to one multi-site, Chlorothalonil (CT), and two single-site fungicides: Azoxystrobin (AZ) and Boscalid (BC). Mycelial inhibition growth (MIG) assay was used to assess the sensitivity of 46 isolates to different doses of CT (25; 50; 100 and 1000 µg/mL) and the control treatment was fungal colony + BDA + DMSO. Spore germination was assessed for all three fungicides using 32 isolates for CT (same doses as in MIG) and AZ, and 36 isolates for BC. The doses of both AZ and BC were 0,001; 0,01; 0,1; 1; and 10 µg/mL. Salicylhydroxamic acid (SHAM) in methanol was added in combination with AZ which was solubilized with acetone. DMSO was used to solubilize CT and BC. The control treatments were: conidia suspension + DMSO for CT and BC; and conidia suspension + acetone + SHAM + methanol for AZ. Assessments were made 7 days after incubation at 25 °C for MIG (colony diameter) or 12h for conidia germination (%). The ED50 was estimated using regression analysis. All isolates were sensitive to CT, but 11 and 33 isolates had reduced sensitivity to AZ and BC, respectively. Partial sequences of the genes associated with resistance to AZ (*cytb*) and BC (*AsSdhB*, *AsSdhC* and *AsSdhD*) were obtained for 8 isolates. An isolate sensitive to both fungicides was also sequenced and used as control. No mutation was detected in *cytb*, but mutations were detected in the B, C and D subunits of the SDH complex. For isolate AS248 three mutations were detected in subunit B: W178R, A211T and S227P; one mutation in subunit C (T164A) detected in isolates AS559, AS590, AS591, and AS594; and three mutations in subunit D (V48I, A141V, and V149A) in isolate AS248, and a different mutation, S117P, in isolate AS588. Anti-resistant strategies must be adopted to prevent the development of resistant populations and restore the efficacy of AZ and BC.

Key words: Fungicide resistance; Chemical control; Early blight; Mutation.

¹Grant information: CNPq and FAPEMIG.