

SUMMARY

DETERMINATION OF VEGETATIVE COMPATIBILITY GROUPS (VCGs) OF *VERTICILLIUM DAHLIAE* KLEB. ISOLATES OBTAINED FROM COTTON GROWING AREAS OF AYDIN PROVINCE

This study was conducted to determine the Vegetative Compatibility Groups (VCGs) of the *Verticillium dahliae* isolates obtained from 12 important cotton growing counties of Aydın (Aydın(Center),Yenipazar, Koçarlı, Germencik, Söke, Nazilli, Kuyucak, Buharkent, İncirliova, Çine, Köşk, Karpuzlu) in the years 2004-2005.

Total 47 *Verticillium* spp. isolates were obtained from the cotton plants which exhibited the symptoms of Verticillium Wilt. In the diagnostic studies, all isolates were identified as *Verticillium dahliae*. Single spore studies of these isolates were also performed and 47 single spore *V.dahliae* isolates were obtained.

The pathogenicity tests of these *V.dahliae* isolates were carried on cotton plants(cv.Acala SJ 2). The virulence of the isolates collected in 2004 changed between 3.83 and 93.37% while the percentage of leaf shedding ranged from 0 to 86.66%. For the 2005, the virulence of the isolates was found 29.5-100 % and the percentage of leaf shedding changed between 0.0 % and 100 %. It was found that *V.dahliae* isolates having high virulence caused heavy leaf-shedding.

In 2004, 32 nit mutants were obtained from 12 of 23 *V.dahliae* single spore isolates obtained from the cotton plants. While 96.88 % of these mutants were determined as nit1, 3.12 % of them were determined as NitM. But no nit mutants were obtained from 6 *V.dahliae* single spore isolates. In 2005, a colony resistant to chlorate couldn't be obtained from 8 of 24 *V.dahliae* single spore isolates obtained from the cotton plants. Whereas 31 nit mutants were obtained from the rest 12 of 16 *V.dahliae* single spore isolates, no mutants could be obtained from 4 of them. Nit mutants were phenotypically classified and all of them were in the nit1 group. Among the *V.dahliae* mutants obtained from cotton in 2004 and 2005, nit 3 phenotype wasn't encountered.

64 mutants obtained from 24 single spore *V.dahliae* isolates were tested with nit1 and NitM tester strains (VCG1, VCG2A, VCG2B and VCG4B) for heterokaryosis. But 10 of the mutants developed prototrophically and then lost their mutant features. While

38 (70.4 %) of 54 mutants obtained from the cotton fields were VCG2B, 6 (11.1%) was strongly compatible with VCG2B but weakly compatible with VCG1, 5 (9.3 %) of them was strongly compatible with VCG2B and VCG1, 2 (3.7%) was strongly compatible with VCG2A, 1 (1.8%) was strongly compatible with VCG1 but weakly compatible with VCG2B, 1 (1.8%) was weakly compatible with VCG2B and VCG4B, and 1(1.8 %) was weakly compatible with VCG2B.