

Community Structure of Pathogenic Type of *Verticillium dahliae* Kleb. in Cotton Field

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Abstract: The Community of pathogenic type of *Verticillium dahliae* Kleb. in the same field was studied based on the symptom and the pathogenicity. Six differentially tolerant cotton cultivars (four moderately tolerant cultivars; Wen 5, BD 18, CCRI 12 and CCRI 35; two susceptible cultivars; Xi 5, Xinluzao 7) were planted in Beijing in 2001. 11 differentially tolerant cotton cultivars (eight highly and moderately tolerant cultivars; 8763 Yi (*G. barbadence*), DPL 971 (*G. arboreum*), Shixiya (*G. arboreum*), Changkangmian (*G. hirsutum*), Wen 5, Yu 2067, CCRI 12, CCRI 35; three susceptible cultivars; Xi 5, Xinluzao 7, Jimian 11) were planted in Anyang in 2002. Symptom types of the infected plants were observed and 47 strains were isolated from infected plants in June, July and August in 2001 and 2002. These were identified by two differentially tolerant cultivars (Yu 2067 and Jimian 11) under the same condition. The defoliating strain V99 was used as comparison in the test.

The result showed that in the occurrent time of *Verticillium* wilt, defoliating plants accounted for 36.0% and 28.7% in June and August, respectively, much more than in July (7.32%). Also defoliating plants accounted for 75.0% and 22.9% in resistant cultivars and tol-

erant cultivars which were more than in susceptible cultivars (2.1%). The result also showed the aggression of strains which came from the same field was obviously different. The disease indexes of 16 strains from Beijing changed from 6.4 to 43.8 in 2001. The isolate V50 was considerably less aggressive with disease indexes of 2.0 and 4.7 toward Yu 2067 and Jimian 11. The isolate V47 was considerably more aggressive, with disease indexes of 32.5 and 55.1 toward Yu 2067 and Jimian 11. The disease indexes of 31 strains from Anyang changed from 9.0 to 65.8 in 2002. They could be divided into three pathogenic types: the weak, medium and strong pathogenicity, with corresponding proportion of 51.6%, 32.3% and 16.1%, respectively. The pathogenicity of strains that came from resistant cultivars was apparently different. Defoliating strains and less aggressive strains took higher proportion on resistant cultivars than on susceptible cultivars. Defoliating strains and less aggressive strains accounted for 22.7% in resistant cultivars, while they just accounted for 11.1% and 0 in susceptible cultivars. The results showed that planting the resistant cultivars may cause pathogen changing from weak to strong type. Data reported in the paper support the viewpoint that the pathogenic types in the same cotton field occur as a highly diverse community which changes from weak to strong type continuously.

Key words: cotton; *Verticillium dahliae* Kleb.; pathogenic type; community