

# Race 6 of the Cotton-Wilt *Fusarium* from Paraguay

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## ABSTRACT

ARMSTRONG, G. M., and J. K. ARMSTRONG. 1980. Race 6 of the cotton-wilt *Fusarium* from Paraguay. *Plant Disease* 64:596.

*Fusarium oxysporum* f. sp. *vasinfectum* was isolated from stalks of diseased cotton plants and was identified as race 6 by the reactions of cotton, tobacco, alfalfa, and okra cultivars. This is the first report of the appearance of race 6 outside Brazil.

Stalks of diseased cotton plants were received recently from Todd Mathieson, of the experiment station of the Instituto Agronomica Nacional, Caapuice,

**Table 1.** Reactions of cultivars used in the differentiation of races of *Fusarium oxysporum* f. sp. *vasinfectum*

Cultivar	Races					
	1	2	3	4	5 <sup>a</sup>	6
<i>Gossypium hirsutum</i>						
Acala	S <sup>b</sup>	S	R	R	R	-
Rowden	S	S	R	R	-	S
<i>G. barbadense</i>						
Ashmouni	R	R	R	R	S	-
Coastland	R	R	S	-	-	R
Sakel	S	S	S	R	S	-
<i>G. arboreum</i>						
Rozi	R	R	S	S	-	R
<i>Abelmoschus esculentus</i>						
Clemson Spineless	S	S	R	R	-	S
<i>Nicotiana tabacum</i>						
Burley 5	S	S	R	R	-	R
Gold Dollar	R	S	R	R	-	R
<i>Medicago sativa</i>						
Grimm	S	S	R	R	-	R

<sup>a</sup>See Ibrahim (1).

<sup>b</sup>S = susceptible, R = resistant, - = not tested.

Paraguay. *Fusarium oxysporum* f. sp. *vasinfectum* (Atk.) Snyder & Hans. was isolated from the stalks, and its race was identified as race 6 in the present investigation.

Race 6 was reported recently in Brazil (1) but has not been found in the United States. A literature review and materials

**Table 2.** Wilted plants (external symptoms) after inoculation with *Fusarium oxysporum* f. sp. *vasinfectum* race 6 from Paraguay

Cultivar	External symptoms (%)	Plants tested (no.)
Cotton		
Rowden	96	26
Auburn 623	12 <sup>a</sup>	17
Coastland	20	10
Rozi	0	10
Okra		
Clemson Spineless	58	12 <sup>b</sup>
Alfalfa		
Grimm	12 <sup>a</sup>	17
Tobacco		
Burley 5	0	12
Gold Dollar	0	12
<i>Cassia tora</i>	0	30

<sup>a</sup>Mild external symptoms in one or two leaves.

<sup>b</sup>Very marked internal discoloration in three of the five plants that did not have external symptoms.

and methods have been given elsewhere (1).

Cultivars of cotton (*Gossypium hirsutum* L., *G. barbadense* L., and *G. arboreum* L.), tobacco (*Nicotiana tabacum* L.), alfalfa (*Medicago sativa* L.), and okra (*Abelmoschus esculentus* L.) were used in the race differentiation in *F. oxysporum* f. sp. *vasinfectum* (Table 1). Their reactions after inoculation with the Paraguayan isolate are given in Table 2.

The susceptibility of cultivars Rowden (*G. hirsutum*) and Clemson Spineless okra and the resistance of cultivars Coastland (*G. barbadense*) and Rozi (*G. arboreum*) showed that the isolate did not belong to races 3 or 4 but was similar to races 1 and 2. It differed from races 1 and 2, however, since it did not cause wilt of cultivars Grimm alfalfa and Burley 5 tobacco. That it was not race 2 was shown by the resistance of flue-cured Gold Dollar tobacco, which is susceptible to race 2. The susceptibility of the cultivar Rowden also showed that the isolate was not race 5. Therefore, the isolate was race 6, similar to the race in Brazil.

An isolate of race 6 from Brazil has been deposited with the American Type Culture Collection as ATCC 36198 (1). Seed of Burley 5 and Gold Dollar tobacco have been deposited with Dr. V. A. Sisson, Tobacco Investigations, USDA, SEA, Beltsville, MD 20705.

## LITERATURE CITED

1. ARMSTRONG, G. M., and J. K. ARMSTRONG. 1978. A new race (race 6) of the cotton-wilt *Fusarium* from Brazil. *Plant Dis. Rep.* 62:421-423.