

A Proposed Nomenclature of *Fusarium oxysporum* f. sp. *melonis* Races and Resistance Genes in *Cucumis melo*

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ABSTRACT

RISSER, G., Z. BANHASHEMI, and D. W. DAVIS. 1976. A proposed nomenclature of *Fusarium oxysporum* f. sp. *melonis* races and resistance genes in *Cucumis melo*. *Phytopathology* 66: 1105-1106.

Based on Black's system of classification of races, the authors propose a new nomenclature for races of *Fusarium oxysporum* f. sp. *melonis* and for resistance genes in *Cucumis melo*: races 0, 1, 2, and 1,2, and genes *Fom* 1 and *Fom* 2.

Additional key words: muskmelon, disease resistance, *Fusarium* wilt of muskmelon.

Confusion in the naming of races of *Fusarium oxysporum* f. sp. *melonis* (Leach & Currence) Snyder & Hansen, which causes *Fusarium* wilt of muskmelon *Cucumis melo* L., and genes for resistance in the host has developed in recent years (1, 3, 4, 5, 6). Table 1 summarizes a proposed nomenclature commensurate with independent research findings in our separate laboratories.

There are two known specific resistance genes, *Fom* 1 in Doublon and *Fom* 2 in CM 17187, and four races: race 0, attacking only a cultivar (e.g. Charentais T), which lacks specific resistance genes; race 1, overcoming *Fom* 1; race 2, overcoming *Fom* 2; and race 1,2, overcoming both *Fom* 1 and *Fom* 2. Race 1,2 is further subdivided into race 1,2 wilt strain and race 1,2 yellows strain.

Race differentiation began by comparative study of the reaction of three muskmelon cultivars, Charentais T, Doublon, and CM 17187, to various isolates. In 1965, Risser and Mas (5) classified French isolates of *F. oxysporum* f. sp. *melonis* into three races according to their reactions on these cultivars. In Doublon, resistance to race 1 was found to be controlled by a dominant gene found in some populations of the old French cultivar Cantaloup Charentais (3). In 1973, Risser named this gene *Fom* 1 (4). Resistance of CM 17187 to both races 1 and 2 was attributed to another dominant gene, independent of *Fom* 1 and designated as *Fom* 2.

In 1968, Banihashemi (1) showed that American isolates of *F. oxysporum* f. sp. *melonis* from Michigan differed from the above races by attacking CM 17187 but not Doublon. Later Davis (*unpublished*) found the same result with isolates from Minnesota. Banihashemi (1) designated this as a new race: race 4. Unfortunately Risser et al. in 1969 (6) used this designation for isolates which, similar to race 3, were able to attack all three differential cultivars but which, in contrast to race 3, induce yellows symptoms instead of wilt.

The nomenclature summarized in Table 1 follows the system of Black et al. (2) for *Phytophthora infestans* races

TABLE 1. A classification of *Fusarium oxysporum* f. sp. *melonis* races according to differential host cultivars of *Cucumis melo*

Race of <i>F. oxysporum melonis</i>	Differential hosts and their gene for resistance		
	Charentais T	Doublon (<i>Fom</i> 1)	CM 17187 (<i>Fom</i> 2)
Race 0	S	R	R
Race 1	S	S	R
Race 2	S	R	S
Race 1,2	S	S	S

S = Susceptible; R = Resistant.

and potato cultivars. Resistance genes in *C. melo* are numbered according to the order of discovery and *F. oxysporum* races are named according to the resistance genes they can attack. Although the modified nomenclature would appear to be useful and timely, we recognize that it might not prevent the occurrence of further nomenclature confusion in the future if additional races are discovered.

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