

Reaction of Muskmelon Genotypes to Races 1 and 2 of Sphaerotheca fuliginea in Israel.

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Races 1 and 2 of Sphaerotheca fuliginea (Schlecht. ex. Fr.) Poll. cause powdery mildew on cucurbits in Israel (5). Race 3 was not reported in the country. Race 1 predominates in the winter in greenhouse-grown cucumbers and muskmelons, whereas both races 1 and 2 are found in the summer in the open field. (Y. Cohen, unpublished). Race 2 was considered less aggressive on muskmelon than race 1 in Israel. (Karchi, in (3) with no experimental evidence.) Our preliminary observations with mixed (1:1 ratio) race inoculations in greenhouse-grown muskmelon revealed predominance of race 2 one month after inoculation.

In this paper we report on the pathogenicity of races 1 and 2 to cultivars, breeding lines and F1 hybrids of Cucumis melo L. Plants were grown in 0.5L pots in the greenhouse. When developed two fully expanded true leaves they were inoculated with either race in walk-in growth chambers (23 C, 12h photoperiod). Race 1 was maintained on 'Ananas-Yokneam' whereas race 2 was maintained on 'PMR-45' plants. Disease records were taken 14 days after inoculation. Each inoculation test was done three times. Results summarized in Table 1 show that 23 out of the 43 genotypes tested were resistant to race 1 and 11 genotypes were resistant to both races 1 and 2. No genotype was resistant to race 2 and susceptible to race 1. Most genotypes resistant to both races are breeding lines or plant introduction entrees, indicating the difficulty in incorporating race 2 resistance into commercial cultivars. Indeed, race 1 resistance genes are dominant and available in 'PMR 45' (Pm-1), PI 124111 (Pm-3) and PI 124112 (Pm-4), whereas race 2 resistance genes available in PI 124111 (1) and PI 124112 are partially dominant (Y. Cohen, H. Eyal, and D. Deningsbach, unpublished). The dominant gene B in PI 414723 against race 2 was effective in Monfavet, France 1983 but not in 1984 (3).

LITERATURE CITED

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Table 1. Pathogenicity of Sphaerotheca fuliginea race 1 and race 2 to genotypes of Cucumis melo var. reticulatus

<u>Genotype</u>	<u>Severity of powdery mildew</u>		<u>Remarks</u>
	<u>Race 1</u>	<u>Race 2</u>	
1. Ananas-Yokneam	+++	+++	
2. Hemed	++	++	
3. Ein-Dor	-	+	*severe in stems
4. Sharon F1	+*	+	*severe in stems
5. Galia F <sub>1</sub>	+	+++	
6. Makdimon F <sub>1</sub>	+	+HS	*in stems only
7. Golden Perfection	+++	+++	
8. Hale's Best 36	+++	++	
9. Hale's Best Jumbo	+	++	*severe in stems
10. Top Mark	+++	+++	
11. PMR 45	-	++	
12. Perlita 45	-	nt	
13. Smith's Perfect	+++	+++	
14. Cum Laude	++	+++	
15. Delectious 51	+++	+++	
16. Honey Dew Green Flesh	+++	+++	
17. Planter's Jumbo	+++	+++	*on stem mainly
18. Gulfcoast	-	nt	
19. Green Ice	++	nt	
20. Hiline	-	nt	
21. Gulf Stream	-	+	
22. Amarello	+++	+++	
23. Sierra Gold	+ Sg.	+++	
24. Edisto 47	-	+	
25. Rio Gold	-	-	
26. Tam Uvalde	-	+	
27. GA 47	-	+*HS	*moderate on stems
28. Cinco	-*	+	*moderate on stems
29. Chilton	-	+	
30. Mission F <sub>1</sub>	-	+	
31. Seminole	-	+HS	
32. Charity Ball	-	-	
33. Emerald Pearl	+++	+++	
34. Doublon	-	nt	
35. Charantais - T	-	-	
36. PMR 5	-	-	
37. PMR 6	-	-	
38. MR - 1	-	-	
39. PI 124111	-	-	
40. PI 124111F	-	-	
41. PI 124112	-	-	
42. Male-Sterile 1	-	-	
43. Dulce	-	-	

Scale: - no apparent disease development; + one or two colonies per leaf with sparse sporulation; + up to 5 colonies per leaf with abundant sporulation; ++ up to 10 colonies per leaf with abundant sporulation; +++ 20 or more colonies per leaf with abundant sporulation.

HS - hypersensitive response; Sg - segregates.

Sources: Hazera, Israel, genotypes No.: 1,2,3,4,5,6,  
Petoseed, : 11, 12  
Asgrow : 20, 22, 30,  
Hollar : 8, 9, 13, 17, 18, 23, 26, 29  
USDA : 7, 10, 14, 15, 16, 19, 22, 25, 27, 28,  
31, 36, 37, 38, 39, 41, 42, 43  
Sakata, Japan: 32, 33  
INRA, France : 34, 35