EVALUATION OF RESISTANCE TO Phytophthora capsici IN A BRAZILIAN INTRODUCTION OF Capsicum annuum

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Due to the importance of losses in sweet and hot peppers due to Phytophthora capsici in the states of Distrito Federal, Goiás, Minas Gerais, Rio de Janeiro, and São Paulo a program to search for resistance in native materials as well as to evaluate foreign sources of resistance was begun in 1980.

Resistance was evaluated under controlled (greenhouse) and field conditions by the use of a collection of over 40 isolates of P. capsici and more than 120 plant introductions. For artificial inoculations, zoospores of P.capsici were obtained by growing isolates on "Suco de tomate Superbom temperado-agar" medium for 7 days at 24 C, flooding the plates with sterile distilled water, and giving them a cold shock (4-8 C) for 2 hours. The freshly harvested zoospores were placed at the soil line, 3 ml/plant. On the field, materials were exposed to either artificial inoculation with zoospore or natural levels of inoculum, depending on the planting season.

One of the resistant brazilian introductions thus evaluated, CNPH 286, derived from BGH/UFV 3036, presented, in addition to a very high level of resistance to P. capsici, some desirable plant characteristics, such as low level of pungency and green fruit when mature.

The effect of inoculum level (10^2 - 10^6 zoosp./ml) and plant age (20 - 76 days) on resistance was evaluated. Local susceptible cultivars (CNPH 66 and CNPH 69) were used as checks (tables 1 and 2).

Resistance shown by this material is being used by our breeding program in order to incorporate it in the most important commercial cultivars in Brazil, all of them being highly susceptible. Since sweet pepper plants are transplanted from seedbeds to the field usually after 50 - 60 days after sowing, no problem is foreseen due to the lower level of resistance in the juvenile plant stage.

Seeds of this and other Capsicum introductions are available, in small quantities, to interested individuals. Germplasm exchange is encouraged.

Table 1. Effect of inoculum concentration on resistance[1] of C. annuum CNPH 286 under field conditions.

	CONCENTRATION, zoosp./ml				
INTRODUCTION No.	10^2	10^3	10^4	10^5	10^6
CNPH 286	1.0[3]	1.0	1.0	1.0	1.1
CNPH 66[2]	1.7	1.8	2.3	2.7	3.0
CNPH 69[2]	1.4	2.2	2.3	3.0	3.0

1 40 day-old plants were rated using a 1 to 3 scale, where 1=healthy, 2=wilted, and 3=dead plants. Data presented correspond to ratings done 14 days after inoculation.

2 Local cultivar, used as susceptible check.

3 Average of 3 replications, 20 plants/plot.

Table 2. Effect of plant age on resistance of C. annuum CNPH 286 under controlled conditions.

	PLANT AGE, days				
INTRODUCTION No.	20	34	48	62	76
CNPH 286	2.2[3]	1.1	1.0	1.0	1.0
CNPH 66[2]	3.0	3.0	3.0	3.0	3.0
CNPH 69[2]	3.0	3.0	3.0	3.0	3.0

1 Plants were inoculuted with a concentration of 10^4 zoosp./ml, and rated using a 1 to 3 scale, where 1=healthy, 2=wilted, and 3=dead plants. Data presented correspond to ratings done 14 days after inoculation.

2 Local cultivar, used as susceptible check.

3 Average of 3 replications, 10 plants/plot.

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