

RESEARCH NOTE

Screening of pumpkin (*Cucurbita* sp.) germplasm for sources of resistance against downy mildew

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ARTICLE INFO

Received : 16.05.2012
Accepted : 16.07.2012

Key Words :

Genotypes, *Cucurbita* sp. Epiphytic condition, Resistance, Downy mildew

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ABSTRACT

Screening of fifty seven genotypes of pumpkin (*Cucurbita* sp.) was done under natural epiphytic conditions. The genotypes KP-7, KP-11, KP-23, KP-29 and KP-37 were found to be moderately resistant. Remaining genotypes were categorized under moderately susceptible and susceptible group. Only the genotype, KP-24 was found under highly susceptible group. It was concluded that the genotypes KP-7, KP-11, KP-23, KP-29 and KP-37 can be valued as a source of resistance for developing pumpkin genotypes resistant to downy mildew.

How to view point the article : Shivananda, M.M., Madalageri, M.B., Srinivas, S. Chikkur, Mohankumar, A.B. and Yathiraj, K. (2012). Screening of pumpkin (*Cucurbita* sp.) germplasm for sources of resistance against downy mildew. *Internat. J. Plant Protec.*, 5(2) : 440-441.

Pumpkin (*Cucurbita* sp.) is an important cucurbitaceous vegetable, grown under wide range of agro-climatic conditions all over the world. High productivity, low cost of production, good storability, long period of availability, better transport qualities, excellent response to forcing and comparatively high content of carotene (a precursor of vitamin A) in fruits, have enhanced the importance of this crop. Several fungal disease are known to affect cucurbits and among them, downy mildew caused by *Pseudoperonospora cubensis* (Berk. et Curt.) Rostow., is more prevalent in the warm temperate and tropical region of the world. The losses are severe in melons, gourds, cucumber, squashes and pumpkin. Now-a-days chemical control is more expensive and awareness about health hazard by chemical usage turned attention to manage the diseases by developing resistance varieties. Hence, an attempt was made to screen the pumpkin (*Cucurbita* sp.) germplasm for downy mildew resistance.

The present investigation comprised of fifty seven genotypes of pumpkin laid out in a Randomized Block Design with two replications during the year 2009-2010 with row to row distance of 2 m and plant to plant distance of 0.9 m. The per cent disease index (PDI) for downy mildew disease under natural epiphytic conditions was computed by scoring the

disease intensity in zero to five scales given by Pan and More (1996) viz., zero for no symptoms, one for less than 10 isolated spots on leaf, two for 10-20 isolated spots, three for more than 20 spots with necrotic patches or more than 30 per cent leaf area affected, four for necrotic patches spread upto 50 per cent leaf area and five for necrotic patches spread on more than 50 per cent leaf area.

The reaction of pumpkin (*Cucurbita* sp.) genotypes to downy mildew disease is presented in Table 1. In present study, no genotype was found to be immune or resistant to downy mildew. The genotypes, KP-7, KP-11, KP-23, KP-29 and KP-37 were found to be moderately resistant under natural epiphytic condition. The genotypes, KP-17, KP-18, KP-30, KP-32, KP-33, KP-38, KP-39, KP-40, KP-42, KP-43, KP-48, KP-53, Arka Chandan and Arka Suryamukhi were found to be moderately susceptible. The genotypes KP-1, KP-2, KP-3, KP-4, KP-5, KP-6, KP-8, KP-9, KP-10, KP-12, KP-13, KP-14, KP-15, KP-16, KP-19, KP-20, KP-21, KP-22, KP-25, KP-26, KP-27, KP-28, KP-31, KP-34, KP-35, KP-36, KP-41, KP-44, KP-45, KP-46, KP-47, KP-49, KP-50, KP-51, KP-52, KP-54 and Belgaum Local exhibited susceptible reaction. Whereas, the genotype KP-24 was found to be highly susceptible to downy mildew. Hence,

Table 1: Reaction of pumpkin genotypes to downy mildew disease

Sr. No.	Disease reaction	Disease score (0-5 scale)	Genotypes
1.	Immune	0	---
2.	Resistant	1	---
3.	Moderately resistant	2	KP-7, KP-11, KP-23, KP-29 and KP-37
4.	Moderately susceptible	3	KP-17, KP-18, KP-30, KP-32, KP-33, KP-38, KP-39, KP-40, KP-42, KP-43, KP-48, KP-53, Arka Chandan and Arka Suryamukhi.
5.	Susceptible	4	KP-1, KP-2, KP-3, KP-4, KP-5, KP-6, KP-8, KP-9, KP-10, KP-12, KP-13, KP-14, KP-15, KP-16, KP-19, KP-20, KP-21, KP-22, KP-25, KP-26, KP-27, KP-28, KP-31, KP-34, KP-35, KP-36, KP-41, KP-44, KP-45, KP-46, KP-47, KP-49, KP-50, KP-51, KP-52, KP-54 and Belgaum Local.
6.	Highly susceptible	5	KP-24

the genotypes KP-7, KP-11, KP-23, KP-29 and KP-37 can further be screened under different epiphytotic conditions to test the stability and further they could be incorporated in resistance breeding programme to develop resistant varieties to downy mildew.

REFERENCES

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