

SCREENING OF ONION GERMPLASM RAISED FOR SEED CROP AGAINST PURPLE BLOTCH

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Purple blotch caused by *Alternaria porri* (Ellis) Ciferri is an important disease of onion crop in India. Both seed as well as bulb crops are infected but the intensity is higher in the former. To control this disease, various cultural (Awad *et al.*, 1978; Boelema and Ethlers, 1967) and chemical methods (Desai *et al.*, 1979; Gupta *et al.*, 1981) have been tried but disease still continues to be a serious problem. Breeding for disease resistance appears to be an effective, economical and practical method of disease control. This paper reports the relative reaction of different onion genotypes against purple blotch in the field trials.

The trial was conducted at Punjab Agricultural University, Ludhiana where the field soil was sandy loam in texture (pH 8.2). One hundred and thirty-five onion genotypes (Table 1) were sown in randomized block design in plots measuring 12 square metre. All the recommended agronomic practices were followed throughout the crop season. The disease score was taken about ten days prior to seed harvesting. For recording the per cent disease intensity (PDI), a 0-5 class rating technique was used, where 0 = no disease and 5 = more than 80 per cent area covered by the disease symptoms. The PDI calculated as $PDI = 100 (Scr) 95n^{-1}$, where Scr = Sum of all class ratings, n = number of scapes examined and '5' as the maximum class rating in the scale. Based on the disease intensity values, the genotypes were rated as resistant (R), moderately resistant (MR), susceptible (s) and highly susceptible (HS) with PDI in the range between 0-5, 6-15, 16-25 and more than 25 respectively.

The data on disease intensity showing the relative reaction of different genotypes are presented in Table 1. The incidence of purple blotch varied

with the genotypes. None of the 135 genotypes screened against purple blotch disease remained disease free. As many as 27 contracted less than 10 per cent disease intensity. Out of these 27 genotypes, 12 viz., PO-1, PBR-2, PBR-3, PBR-4, PBR 5, PBR-6, PBR-7, PBR-8, PWO-1, Red Creole, Lohru and Hybrid Superex contracted a disease intensity of less than 5 per cent and were rated as resistant. Twenty-three genotypes contracted an intensity of 6-15 per cent and were rated moderately resistant. Thirty-seven genotype with a PDI of

Table 1. Relative reaction to onion genotypes raised for seed crop against purple blotch

Reaction	P.D. Value	Number of genotypes	Genotypes
Resistant (R)	0-5	12	PO-1, PBR-2, PBR-3, PBR-4, PBR-5, PBR-6, PBR-7, PBR-8, PWO-1, Red Creole, Lorhu, Hybrid Superex
Moderately resistant (MR)	6-15	23	PO-7, PO-11, PO-15, PO-17, PO-20, PO-21, PO-26, PO-27, PO-31, PO-32, PO-35, PO-37, PO-48, PO-51, PO-56, PO-62, PO-72, PO-79, Onion early yellow, Punjab red round, PB-48, VL-1, Market sel-1
Susceptible (S)	16-25	37	PO-2, PO-4, PO-5, PO-13, PO-14, PO-18, PO-30, PO-34, PO-36, PO-38, PO-39, PO-41, PO-43, PO-49, PO-50, PO-52, PO-54, PO-55, PO-60, PO-65, PO-66, PO-74, PO-75, PO-77, PO-80, PO-81, PBR-1, Sel-102-1, Punjab selection, PWR, INBRED-2, Shah Koti, Pusa Rattnar, Delhi-1, IHR-403, INBRED-6
Highly susceptible (HS)	>25	63	PO-3, PO-6, PO-8, PO-9, PO10, PO-12, PO16, PO-19, PO-22, PO-23, PO-24, PO-25, PO-28, PO-29, PO-33, PO-35, PO-36, PO-37, PO-38, PO-39, PO-40, PO-42, PO-44, PO-45, PO-46, PO-47, PO-53, PO-57, PO-58, PO-59, PO-61, PO-63, PO-66, PO-67, PO-68, PO-69, PO-70, PO-71, PO-73, PO-76, PO-78, PO-82, PO-83, Onion early texas, Onion yellow granex, Pusa Red, Arka Niketan Bombay var, Early Grano, N-53, Inbrd-58, Puna Prizetaker, Inbred-17, IHR-114, IHR-387, IHR-392, Inbred-I, Afrd, Market Sel-2, IC-1981010, Patriot, Gujarat No.1, PWF

16-25 per cent showed a susceptible reaction. The remaining genotypes belonged to highly susceptible group (PDI > 25%). Some of the genotypes belonging to the resistant category have been involved in the hybridization for onion improvement. The variety PBR-5 has been approved by the Punjab Agricultural University for the general release to the state farmers under the name 'Punjab Jyoti'.

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