INDIAN JOURNAL OF ARID HORTICULTURE
2011, Vol. 6 (1-2) : 73-74

SHORT COMMUNICATION

Field evaluation of bottle gourd genotypes for resistance against *Alternaria* leaf blight in Western Rajasthan

S. K. Maheshwari* and Dhurendra Singh
Central Institute for Arid Horticulture, Beechwal, Bikaner 334 006 (Rajasthan)

Rajasthan, though the largest state in the country, the area under vegetables in the state is merely 135682 ha with a production of 818900 million tons (Anon. 2009). The productivity in the state is 6.0 t/ha, which is quite lower than the national productivity of 16.1t/ha. Bottle gourd {*Lagenaria siceraria* (Mol.) Standl.} is a commonly grown vegetable in India. It is also grown in Ethiopia, Africa, Central America and other warmer regions of the world. It is also suitable for cultivation throughout in the Rajasthan state. The fruits can be used as a fresh vegetable. As a vegetable, it is easily digestible, even by patients (Thamburaj and Singh, 2000). It is gaining importance due to its high yield potential and steady market price throughtout the season. *Alternaria* leaf blight caused by *Alternaria cucumerina* (E.&E.) Elliot, is found throughout the world on various cucurbits (Ibrahim *et al.*, 1975). In Egypt, Prasada *et al.* (1972) found that the yield loss from a single plant was as high as 63% with early infection of *Alternaria* leaf blight in muskmelon when environmental factors were favourable for development of this disease. Bottle gourd is affected by many fungal diseases, of which *Alternaria* leaf blight caused by *Alternaria cucumerina* (E.&E.) Elliot is one of the most important diseases that quantitative and qualitative losses to the crop. Lesions tend to appear first on the older leaves as small, circular, light to dark brown spots and form concentric rings on the leaves of crop and spreads covering some leaf area. The cheapest, practical and economical control of the disease can be achieved by resistant varieties against the disease (Jadhav and Sharma, 1983). Plant resistance is an effective and environmentally safe means of reducing losses caused by the fungal disease. Keeping in view this important component of integrated disease management, efforts were made to screen bottle gourd genotypes for resistance against *Alternaria* leaf blight under hot arid conditions of Rajasthan.

A field trial was conducted during rainy season of 2011 to screen 17 bottle gourd genotypes/varieties such as Pusa Santushti, Pusa Sandesh, PSPL, Udaipur Local, Chomu Local, Azad Harit, Panchmahal Local, Arka Bahar, Pusa Naveen, Pusa Samridhi, Thar Samridhi, PN-22, IC-567538, Sriganganagar Local DBG-5, DBG-6 and Jodhpur Local against *Alternaria* leaf blight at Central Institute For Arid Horticulture, Bikaner with general agronomical practices. These genotypes were received from ICAR Institutes (IARI, New Delhi, NBPGR, IIHR, Bangalore), Agricultural Universities and farmer's field. The seeds were sown in the field in Randomized Block Design at a spacing 50 x 100 cm with three replications on 30th June, 2011. No plant protection measures were taken up in the present study. Susceptible germplasm 'Chomu Local' was sown after each five rows of the test genotypes as check and also grown around the border of the field to serve as infector rows. Isolation was made from the diseased bottle gourd leaves showing typical symptoms. The culture thus obtained was purified. Observations on disease intensity were recorded periodically. Disease intensity was calculated on the basis of percent leaf area covered by spots with some modifications (Prasada *et al.*, 1972). The reaction for resistance due to *Alternaria* leaf blight was categorized by using modified 0- 5 scale (Kumar and Rani, 2010): immune (I) = 0%, resistant (R) = 0.1 to 10%, moderately resistant (MR) = 10.1 to 25%, moderately susceptible (S) = 25.1 to 50%, susceptible (S) = 50.1 to 75% and highly susceptible (HS) = > 75%.

The results presented in Table 1 reveal that there was significant variation in all the genotypes evaluated against *Alternaria* leaf blight of bottle gourd. Out of seventeen genotypes, none was found immune, while six varieties such as Pusa Naveen, Pusa Samridhi, Pusa Santushti, Pusa Sandesh, PSPL and Arka Bahar were resistant having 5.258.75% disease intensity. Five genotypes *viz.*, PN-22, DBG-6, DBG-5, Azad Harit and IC-567538 were moderately resistant (11.5 to 21.25% disease severity) against this disease and remaining six genotypes such as Panchmahal Local, Sriganganagar Local, Jodhpur Local, Udaipur Local, Chomu Local and Thar Samridhi proved moderately susceptible with disease severity ranging from 25.50- 28.75%. Carmody *et al.* (1985) screened the muskmelon cultivars and found that three cultivars (TAM-Uvalde, TAM-Mayan Sweet and Greenflesh Honeydew) were resistant against *Alternaria* leaf blight of muskmelon. Kumar and Rani (2010) noted that three entries *viz.*, RAUP-32, RAUP-34 and Pusa (B)-35 were found to be resistant and twelve entries showed moderately resistant against *Alternaria* blight in pegionpea.

During the study period, none of genotypes were found susceptible due to prevailing dry atmospheric conditions, typical hot arid conditions, which is unfavourable for the disease appearance. However, keeping in mind the unpredictable and fluctuating weather

*Corresponding author's e-mail : maheshwariskciah@gmail.com

conditions, particularly in view of global climate change, it is advisable to grow resistant varieties for the improved production of bottle gourd. *Alternaria* leaf blight may attain an alarming status and may havoc in bottle gourd growing areas if not taken care well in time. These findings confirm the performance of Institutional varieties are tolerant (Pusa Naveen, Pusa Samridhi, Pusa Santushti, Pusa Sandesh, PSPL and Arka Bahar) in context of disease severity as compared to other genotypes and local collections. Therefore, it is need of the hour to develop an effective management strategy to combat this dreaded diseases of bottle gourd.

Table 1 : Disease reaction for resistance of different genotypes of bottle gourd against *Alternaria* leaf blight

Disease reaction	*Alternaria* leaf blight
Immune (0.0%)	Nil
Resistant (0.1 to 10%)	Pusa Naveen, Pusa Santushti, Pusa Sandesh, Pusa Samridhi, PSPL an d Arka Bahar.
Moderately resistant (10.1 to 25%)	PN-22, DBG-6, DBG-5, Azad Harit and IC-567538.
Moderately susceptible (25.1 to 50%)	Panchmahal Local, Sriganganagar Local, Jodhpur Local, Udaipur Local, Chomu Local and Thar Samridhi.
Susceptible (50.1 to 75%)	Nil
Highly susceptible (> 75%)	Nil

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