REGISTRATION OF GERMPLASM

Registration of Four Pigeonpea Germplasm Lines Resistant to Fusarium Wilt: ICP 8863, ICP 11292, ICP 11299, and ICP 12745

Four pigeonpea [Cajanus cajan (L.) Millsp.] germplasm lines, ICP 8863 (Reg. no. GP-137, PI 578257), ICP 11292 (Reg. no. GP-138, PI 578258), ICP 11299 (Reg. no. GP-139, PI 578259), and ICP 12745 (Reg. no. GP-140, PI 578260) resistant to fusarium wilt (caused by Fusarium udum E.J. Butler) were released in 1993 by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, India.

These lines were identified by first screening >8000 germplasm accessions and cultivars in the wilt-sick nurseries at ICRISAT Center (1), and then testing the resistant lines in the wilt-sick nurseries of the Indian National Program (2). The original germplasm accessions and cultivars showed segregation for wilt resistance and susceptibility (Table 1). Wilt incidence in the original accessions of these four lines in the wilt-sick nurseries at ICRISAT Center, Patancheru, ranged from 17 to 95%. The lines were purified by selfing the resistant plants and eliminating the susceptibles for two to three generations at ICRISAT Center. Wilt incidence in the selected lines ranged from 1 to 6% (Table 1). The resistant selections were evaluated at 10 to 14 locations in India for 4 to 10 yr between 1979 and 1990. The mean wilt incidence in the selected lines ranged from 8 to 12%, compared with 77% in the susceptible control ICP 2376. For wilt evaluation, test lines were planted alternately with rows of susceptible lines as controls.

Observations on morphoagronomic characters of the resistant lines were recorded at ICRISAT Center (18° N, 78° E) (Table 1). The crop was sown in June, at the beginning of the rainy season, and harvested between October and March, depending on the maturity of the lines. The lines were either medium- or long-duration types with semispreading growth habit. All the lines originated from India, and have yellow flowers and oval seeds except ICP 12745, which has elongated seeds.

ICP 8863 was released for general cultivation in the Karnataka state of India during 1986. It is earlier in maturity by ≈15 d compared with C 11 and performs well under terminal drought situations. It shows less variability in pigeonpea lines probably because of less outcrossing.

Pigeonpea fusarium wilt isolates in India have been categorized into two distinct strains. Variation in the reaction of the lines at different locations could be due to the different strains.

ICP 8863 and ICP 11292 were resistant to both the strains (4).

A small quantity of seed of these wilt-resistant germplasm accessions can be obtained from the Genetic Resources Program at ICRISAT Center.

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Table 1. Morphoagronomic characters of fusarium wilt-resistant pigeonpea germplasm lines developed at ICRISAT, Patancheru, India.

<table>
<thead>
<tr>
<th>Accession</th>
<th>original collection</th>
<th>selected line</th>
<th>Pedigree</th>
<th>Maturity†</th>
<th>Growth habit</th>
<th>100-seed wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICP 8863</td>
<td>83</td>
<td>6</td>
<td>IC-WR-SEL-P-15-3-3</td>
<td>120</td>
<td>semispreading</td>
<td>9.5</td>
</tr>
<tr>
<td>ICP 11292</td>
<td>95</td>
<td>1</td>
<td>IC-WR-SEL-C-11</td>
<td>135</td>
<td>semispreading</td>
<td>9.9</td>
</tr>
<tr>
<td>ICP 11299</td>
<td>74</td>
<td>1</td>
<td>IC-WR-SEL-BORI-1</td>
<td>145</td>
<td>compact</td>
<td>10.6</td>
</tr>
</tbody>
</table>

† Maturity, or time to 50% flowering, is expressed in days after planting (DAP).

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References and Notes


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