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Title: CHARACTERIZATION OF PIGEONPEA [*Cajanus cajan* (L.) Millsp.] GENOTYPES UNDER RAINFED AGRO-ECOLOGICAL CONDITION

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**Abstract:** The quantitative and qualitative characterization of plant is the basic criteria in order to provide fundamental information for crop improvement programme. The present study was conducted with an objectives to grouping and evaluation of 104 along with 4 checks of pigeonpea genotypes. Characterization on the basis of 27 agro-morphological (14 quantitative and 13 qualitative) traits. The experimental materials were planted in Augmented Block Design- II at the Birsa Agricultural University, Research Farm (Dryland Section), Kanke, Ranchi during Kharif season 2016-17. The result revealed that out of fourteen characters the significant treatment (eliminating block effect) differences were for only five characters i.e. initial plant stands plot,-1 days to maturity, wilt percent, pod size and yield (kg/ha) are found significant. Characterization is based on following agro-morphological traits i.e. days to maturity ranged from 181.00 (WRG286) to 247 days (BAHAR(C)) with mean 194.01. All the genotypes are categorized into two groups based on maturity. In first group, having highest one hundred two genotypes falls under medium group, whereas six genotypes were found late in second group. Number of pods plant-1 ranged from 1 (RVSA12) to 177.43 (WRG204) with mean 135.0. Yield for 108 genotypes ranged from 18.94 (RVSA12) to 1813.04 kg/ha (WRG204) with mean 893.29. All the genotypes are categorized into seven groups based on yield. However, all the entries fall in three groups i.e. fourth, third and fifth having sixty seven, twenty eight and eight genotypes respectively, whereas three, and one genotypes comes under sixth, first and seventh groups respectively. But none of the genotypes comes under second group. Whereas agro-morphological characterization i.e. Plant branching pattern is classified into three groups i.e. Erect, Semispreading and Spreading. Seventy three genotypes had erect plant type whereas twenty three and twelve genotypes had semi-spreading and spreading type respectively. Ninety two genotypes were found indeterminate type and sixteen genotypes were determinate type. Most of the characters showed a wide range in their gross variability. These characters were grain yield (18.94-1813.04) kg/ha, number of pods plant-1 (1-177.43), wilt% (-2.88-72.11), days to first flowering (77.56-111.31), days to 50% flowering (87.75-121.00) and number of primary branches plant-1 (-2.91-24.23). However, pod size (0.03-6.75) cm, initial plant stands plot-1 (13.12-21.37) and 100 seed weight (-0.05-11.54) g showed lowest range of variability. The heritability estimates in broad sense expressed in percentage. For all the characters ranged from (6.14) for initial plant stands plot-1 to (81.85) for pod size. High heritability estimates was also observed for most of the characters like pod size (81.85%), wilt (74.46%), grain yield kg/ha (73.43%), days to maturity (68.26%) and initial plant stands plot-1 (63.14%). High genetic advance for following traits like wilt% (472%), pod size (64.45%) and yield (32.57%), whereas moderate to low for these characters; initial plant stands plot-1 (14.16%) and days to maturity (4.41%). There are five promising genotypes of pigeonpea were selected as donor for multiple traits for utilization in hybridization programme or may be directly used to the cultivation namely; WRG 204, WRG 244, TDRG 33, TDRG 107 and GRG 2009-1. From the investigation it was observed that the genotypes WRG 220, WRG 204, WRG 293, and BSMR 243 were good as far as seed yield is concerned. From the table it may be concluded that the genotypes WRG 204, WRG260, WRG220, WRG197 and BSMR 243 were identified as good performance for most of the yield attributing traits and hence may be used for further breeding programme.

**Description:** CHARACTERIZATION OF PIGEONPEA [*Cajanus cajan* (L.) Millsp.] GENOTYPES UNDER RAINFED AGRO-ECOLOGICAL CONDITION

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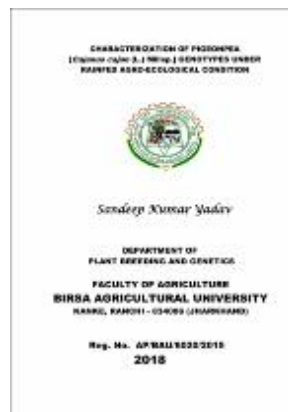
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