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Diversity analysis (genetic, molecular and gum content) of cluster bean (*Cyamopsis tetragonoloba* L.) - An emerging industrial crop

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Cluster bean is an important arid legume crop of the arid and semi-arid regions of the world. In the present study 140 germplasm lines of cluster bean were evaluated for agronomic and yield. Wide variation was observed among agronomic and yield-related traits among the accessions. High heritability (~85%) coupled with high genetic advance (~30%) was observed for total yield, pods per cluster and cluster on the main branch. Seed number and total yield exhibited significant positive correlation with pod length (0.55) and number of pods (0.85) respectively. Principal component analysis revealed significant variation among the characters with the first four principal components explaining about 70.8% of the total variation. Projecting the germplasm accession onto the first two principal components revealed two groups: (i) accessions showing high pods per cluster, total pods and total yield and (ii) accessions having high seed number. Endosperm content and gum content was carried out for selected lines (high yielding) that included branched, unbranched, and vegetable type lines. The gum content and endosperm content ranged between 26.95 to 31.68% and 36.4 to 42.5% respectively. RAPD analysis indicated polymorphism in banding pattern among the selected germplasm lines. Among the 140 germplasm lines evaluated, IC-421815 was the best performing line (yield - 31.53 gm/plant; pod number/plant - 139.8; and pods per cluster - 8.6) compared to the five check varieties. The information presented here is very resourceful for cluster bean breeding.

Biography

Aravind K Jukanti has obtained his PhD in wheat genetics from Montana State University, Bozeman, USA. Postdoctoral research work was carried out on functional genomics of barley (at Montana State University, USA) and protein-protein interaction studies in castor (at Donald Danforth Plant Science Center, St. Louis, USA). Presently he is working as a Senior Scientist (Plant Breeding) at Central Arid Zone Research Institute, Jodhpur, Rajasthan, India. In total he has about 40 publications to his credit in cereal (wheat, barley, maize) and pulse (chickpea, cluster bean) crops. He is also manuscript reviewer for several international journals including Crop Science, Euphytica and Journal of Crop Science and Biotechnology.

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