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Characterization of cowpea landrace diversity of Kashmir: pattern of variation for morphological and yield traits and resistance to mosaic virus

Parvaze A. Sofi [1*], R. R. Mir [1], Musharib Gull [1], Sadia Shafi [1], Aaqif Zaffar [1], Saima Gani [1] and Kuldeep Tripathi [2]
[1]Sher-e-Kashmir University of Agricultural Sciences and Technology-Kashmir, Wadura-193201, India
[2]ICAR-National Bureau of Plant Genetic Resources, New Delhi-110012, India
*Corresponding author e-mail: parvazesofi@gmail.com
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Abstract
The present study was undertaken to characterize local landraces of cowpea. There was a substantial variation among accessions evaluated for all the traits, as depicted by the relative frequency of accessions for various qualitative parameters. Most of the accessions had an erect and indeterminate growth habit with a twining tendency. The seed colour was predominantly black with a globose shape. The range of variations for different quantitative traits were days to 50% flowering (47.50-54.75), days to maturity (91.75-98.25), plant height (65.00-94.04 cm), the number of pods per plant (7.02-23.88), pod length (10.44-20.12 cm), seeds per pod (9.16-13.22), seed length (5.41-9.90 mm), seed breadth (4.28-7.99 mm), 100-seed weight (8.31-26.40 g), seed yield per plant (8.60-47.79 g) and green biomass per plant (126.66-698.68 g). Higher PCV and GCV values were recorded for almost all traits. High heritability was recorded for all the traits ranging from 62.05% for plant height to 99.34% for 100-seed weight. There was a significant positive correlation of seed yield with the number of pods per plant, pod length, and 100-seed weight. Similarly, green biomass per plant had a significant positive correlation with 100-seed weight, seed length, seed breadth, and seed yield per plant. PCA concentrated the variability in the first four principal components accounting for 77.80% of the total variation, with the first two PC's explaining 50.90% of the total variation. Genotypes C14, C24 and C36, had higher seed yield, green biomass, and complete field resistance to cowpea mosaic virus. However, only C24 and C36 showed complete resistance to the cowpea mosaic virus under greenhouse conditions.

Keywords: Cowpea, Cowpea mosaic virus, GCV, Landraces, PCA, PCV