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Genetic analysis, heritability and principal component analysis of *Lathyrus sativus genotypes* in terai region of West Bengal, India

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Abstract
An investigation was carried out during 2019-20 and 2020-21 in 10 Lathyrus genotypes in Experimental Farm of Uttar Banga Krishi Viswavidyalaya, Pundibari, West Bengal to evaluate the genetic parameters by estimating genetic coefficient of variation (GCV), phenotypic coefficient of variation (PCV), heritability, genetic advance against mean and also principle component analysis. They were done to assess the extent of variability present and effect of additive genes in the physiological characters of 10 accessions. High heritability was found in days to maturity, while high heritability and high genetic advance were found in leaf length, pods per plant, seeds per plant, seed index and biological yield per plot. These characters were found to be influenced by additive genes and they were genetically carried out the characters having less influence from the environment. Eigen values of the first four PCA components were found 86.36% and maximum contribution of physiological characters were found in biological yield per plot followed by days to 50% flower, plant height, leaf length, leaf breadth, pod length, pod width, seeds per pod, seed index, root length, and seeds per plant, respectively. Therefore, crop improvement programmes may be done considering these characters in future.

Keywords: Additive gene effect, GCV, Genetic advance against mean, Heritability, PCA, PCV