Principal Components Analysis for Yield and Yield Attributing Traits in Sesame

Ajay Tanwar and Rajani Bisen*

Jawaharlal Nehru KrishiVishwa Vidyalaya, Jabalpur-482 004, India
*E-mail: rajanitomar20@gmail.com

Abstract: The present research was conducted to identify the minimum number of components, which can explain maximum variability out of the total variability and also to rank 96 sesame germplasm on the basis of PC scores using Principal Component Analysis (PCA). Out of ten, only nine principal components (PCs) exhibited more than 0.5 eigen value and showed 95.19% total variability among the characters. These nine PCs were given due importance for further explanation. Rotated component matrix revealed that the PC1, which accounted for the highest variability was mostly related to yield related traits like plant height, number of capsules plant^{-1}, number of primary branches plant^{-1} and seed yield plant^{-1}. PC2 was also dominated by yield related traits like number of secondary branches plant^{-1}, 1000 seed weight and capsule length. PC3 was dominated by physiological and quality related traits like days to maturity and oil content. While, PC4 was more related to physiological traits like days to 50% flowering. On the basis of Principal Component Analysis, the germplasm ES-334962, EC-334992-1, ES-424, S-0069, ES-173, G-19 and GRT-8392 were selected with highest PC values for characters plant height, number of capsules, number of primary branches plant^{-1}, oil content, days to maturity and seed yield plant^{-1}.

Keywords: Sesame, Physiological traits, Variability, Principal component analysis