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Estimation of genetic variability among different soybean genotypes for yield and quality traits

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Soybean serves as one of the most valuable crops in the world, not only as an oil seed crop, feed for livestock and aquaculture, but also as a good source of protein, fat and oil contents for the human diet. Pakistan is facing an acute shortage of edible oils. The present study was planned to estimate the genetic variability among different soybean genotypes for yield and quality traits. The research was conducted in the department of Plant Breeding and Genetics at University Research Farm Chakwal Road, PMAS-Arid Agriculture University Rawalpindi Pakistan during fall, 2016. Eleven soybean genotypes were used from which ten were exotic and one local following Randomized Complete Block Design (RCBD). Observations were recorded on the basis of morphological characters such as germination percentage, plant population, number of primary branches, number of secondary branches, days to 50% flowering, days to flowering completion, plant height, number of pods per plant, 100 grain weight, yield per unit area, biomass, harvest index and protein, fat and oil contents. The collected data were subjected to statistical analysis for ascertaining the significance of traits. The results showed that genotype 19-2 performed best regarding yield per unit area (182.19 g/m^2), followed by genotype KD (152.43 g/m^2) and genotype 35 (127.6 g/m^2) while genotype B⁻¹ (36.11%) genotype 35 (35.88%) and genotype SANNING (35.62%) performed best for protein content whereas, genotype B⁻¹ (20.55 %), genotype JHUNG MONG (20.33%) and genotype KY (19.82%) performed best for fat and oil contents as compare to our local genotype NARC⁻² which contains 35.07 % protein content and 18.04 % fat and oil contents, respectively. The present study is helpful in generating detailed information on yield and quality traits of soybean that can be used in future soybean breeding programs to fulfil the demand of edible oil of the country.