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Assessment of genetic diversity in confectionery sunflower (*Helianthus annuus* L.) germplasm

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The main emphasis so far in sunflower improvement was on grain yield, oil content and pest/diseases resistance, yet in case of confectionery sunflower, the effort to improve quality traits will definitely enhance the value of this crop in terms of consumer preference and industrial uses. An investigation was taken up at the Main Research Station (MRS), Hebbal, Bengaluru, India, to determine the extent of genetic divergence with respect to ten characters in 49 sunflower genotypes consisting of 47 confectionery sunflower and two check cultivars. Analysis of variance revealed the presence of significant variation among the genotypes. Mahalanobis D_2 statistics indicated the presence of substantial genetic diversity. The genotypes were grouped into nine clusters. Based on the intercluster D_2 values for various characters, potential lines were identified from clusters VII and IX for crossing programme. Among the investigated characters, Protein content exhibited high contribution towards genetic divergence followed by oil content, head diameter, seed yield per plant and hull content with minimum contribution. The present study indicates that the inclusion of EC734792, EC734800, EC734807, EC734808 and EC734810 as potential donors for future hybridization programme would result in the development of superior confectionery sunflower cultivars.

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Assessment of morphological diversity in ber (*Zizyphus mauritiana* Lamk.)

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Ber (*Zizyphus mauritiana Lamk*.) is a multipurpose tree fruit crop of the hot arid regions, which holds high economic value in terms of nutritious fruits, medicinal properties, and fodder for the cattle. A large number of varieties of ber are being grown in different parts of the country. However, there is a considerable confusion in ber cultivars nomenclature as they have unique local names and name variants. In addition, information on genetic diversity of plants is vital, from the perspective of breeding, for efficient choice of parents for hybridization. At Central Institute for Arid Horticulture, Bikaner the morphological diversity in ber has been noticed for growth habit; foliage characteristics such as leaf apex and base, leaf size, leaf curving, leaf shape, leaf pubescence and thorn characteristics like thorniness and thorn shape. Likewise, variation had also been noted in fruit characteristics such as presence or absence of anthocyanin blush on immature fruits, fruit surface, fruit apex, fruit shape, fruit size, fruit weight, mature fruit colour, pulp texture, pulp cavity, stone apex, stone shape, stone size, stone weight, pulp: stone ration and quality attributes such as soluble solid contents, acidity and ascorbic acid contents in as many as 314 varieties available in germplasm block. This study would help identification & characterization of ber varieties and elucidation of their morphological relationships based on the mentioned traits following the International Union for the Protection of New Varieties of Plants (UPOV) guidelines. In the future this data may be used for the purpose of registration.

Biography

Hare Krishna completed his Ph.D. from Indian Agricultural Research Institute, New Delhi. He has got an outstanding academic career. With his experience and vision, he contributed significantly to address the major obstacles of commercial micropropagation. In his initial years of career, so far he has published research papers in more than 10 international and 20 national journals. Recently, he has submitted the draft DUS descriptor for Indian jujube (*Ziziphus mauritiana*), which would be first such descriptor in world in line with the UPOV guidelines. Besides, he serves an editorial board member of repute.

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