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Biodiversity of kale (*Brassica oleracea* var. acephala L.) in Kashmir Valley

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ABSTRACT

Forty diverse genotypes of kale were collected from various parts of the Kashmir valley and evaluated during *Rabi* 2004 at three locations, for generating descriptors as an effort to conserve valuable genetic resources of the crop besides documentation. The estimates of range and mean indicated existence of tremendous variability for all the characters under study. Number of leaves was the most variable character with a range of 13.82 to 110.76 leaves per plant followed by plant height with a range of 8.89 to 56.74 cm on the basis of data pooled over environments. The data revealed that the genotypes collected differed significantly from one another, however, classificatory technique when applied broadly classified them in to various groups *viz.*, curly group, ornamental group, perennial group, collard group and tall groups.

Key words : Kales, Biodiversity, Kashmir valley, Descriptors, Evaluation, Germplasm

Kale (*Brassica oleracea* var. *acephala* L.) belongs to the family crucifereae. Kales are probably the first brassicas to be cultivated and are quite similar to wild cabbage. It is a highly nutritious vegetable, rich in vitamins particularly vitamin C, pro-vitamin A and minerals such as calcium, phosphorus, potassium, magnesium, iron etc. It is reported to have highest concentrations of total antioxidants (Cao *et al*., 1996). Amongst the leafy vegetables kale (*Brassica oleracea* var. *acephala* L.) is cultivated on a large scale in the temperate regions of the country. In India kale has not been grown as a vegetable crop for commercial use. However, it is commercially grown in Kashmir and to a limited extent in Jammu, Assam and Himachal Pradesh. In Jammu and Kashmir it is a popular vegetable both among rich and poor and grown in almost all kitchen gardens and also as a commercial crop around cities and towns. Kales grown in Kashmir are popularly known as "HAK". The Sanskrit nomenclature for all edible green leaves "SHAK" appears to have gradually changed in present day local nomenclature as "SAG" in most parts of the country and "HAK" in Kashmir (Wanchoo, 2000). Kales are highly cross pollinated and show tremendous variability for most of the characters. Genetic variability existing and created in both the cultivated and wild species either through natural processes or through crop breeding is essential for generating new gene complexes for realizing higher economic yield and resistance to biotic and abiotic stresses. It is a unique crop which supplements the food needs of the valley both during summer and winter making the crop as one of the most widely grown crop. A discussion on the plant genetic resources of kale (*Brassica oleracea* var. *acephala* L.) in Kashmir can generate a way to minimize the shrinking bio diversity. Inventorization and documentation of the crop is a pre requisite for long term conservation and planned breeding programme.

MATERIALS AND METHODS

Forty diverse genotypes of kale were collected from various parts of the Kashmir valley and evaluated during *Rabi* 2004 at three locations *viz*., Experimental fields of the Division of Olericulture, SKUAST, Shalimar Srinagar, FoA, SKUAST, Wadoora, Sopore, Baramulla and High Altitude Rice Research Sub-station, Larnoo, SKUAST Anantnag. The experimental plot consisted of 3 rows of each genotype in each replication at spacing of 20 x 30 cm. The experimental fields were well prepared and standard recommended package of practices were followed to raise a good crop. Descriptors for each genotype were generated as an effort to conserve valuable genetic resources of the crop besides documentation. The present article on the native genetic resource (Khanyari Hak, Kawdari Hak, Hanz Hak, Wantipori Hak, Jumadari Hak, Anchari Hak and Koker Hak and Pumb Hak) of kale focuses mainly the traditional varieties that are being grown in this region with the exceptionally good yield, quality and disease resistance traits that has suited through ages to the local consumers. This article / contribution will serve as an important research documentation and fulfill the long felt need to have the current status of native genetic diversity of kales in Kashmir.