

**Short Communication**

**Variability in Genetic Resources of Vetiver**

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Two explorations were undertaken to augment the genetic resources in vetiver in 1984, 22 genetic stocks were collected from Bharatpur-Bayana, Bharatpur-Sewar, Bharatpur-Agra and Roopdas highways, while in 1986, 40 collections were made from Keoladeo National Park (Ghana Bird Sanctuary), Bharatpur (where populations of *khus* occur in a protected area of about 29 sq. km).

These 22 genetic stocks from Bharatpur collection were planted in 5 row plots at Issapur Experimental Research Farm in August 1984. Data on growth and root characters were recorded during January 1986, 18 months after planting, when the roots were dug up.

Data were recorded on six characters for 21 accessions (Table 1). The amount of variation observed was for minimum number of stems/plant (12-185) in NC

TABLE 1. ROOT YIELD, OIL CONTENT AND OTHER ATTRIBUTES WITH MEAN VALUES/PLANT OF VETIVER COLLECTIONS

Accessions	No. of stems	No. of roots	Root diameter (mm)	Root length (cm)	Root weight (g)	Oil content (%)
NC 66403 Bund-A	113	274	2.8	23	600	0.75
NC 66404 Bund-B	64	284	2.8	23	582	0.60
NC 66405 Sewola	116	436	2.9	24	905	0.30
NC 66406 Bamanpura	63	230	2.9	24	432	0.40
NC 66407 Jhatolighana	113	331	2.4	26	739	0.60
NC 66408 Barson	95	277	2.9	23	593	0.62
NC 66409 Nagla Bartai	47	223	2.7	24	395	0.28
NC 66410 Chakbhanera A	86	442	2.8	24	1035	0.34
NC 66411 Chakbhanera B	52	286	2.8	25	520	0.30
NC 66412 Uncha Nagla	53	268	2.8	23	516	0.37
NC 66413 Darapur khurd	81	441	2.9	23	818	0.66
NC 66414 Malha A	52	334	2.9	27	740	0.37
NC 66415 Malha B	116	431	2.2	24	952	0.60
NC 66416 Sewar Road A	123	391	2.4	23	854	0.65
NC 66417 Sewar Road B	109	510	2.2	25	813	0.38
NC 66418 Jaicholi A	88	353	2.1	21	615	0.50
NC 66419 Jaicholi B	116	352	2.2	24	811	0.34
NC 66420 Jaicholi C	95	329	2.3	25	994	0.37
NC 66422 Sewar Bridge	105	500	2.3	25	1140	0.25
NC 66423 Bagdhari 101	101	333	2.4	26	754	0.60
NC 66424 Sewar Rly tract	75	326	2.1	23	723	0.33

66424 to maximum number of stems per plant in NC 66403 (30-312). The highest mean value for number of stems per plant was recorded in NC 66416 (123). Average number of roots per plant, a character for which this taxon is valued, was observed in NC 66417 (510). The highest root diameter was recorded in NC 66405, NC 66406, NC 66413, NC 66414 (2.9 mm) and the lowest in NC 66424 and NC 66418 (2.1 mm). The root length in all the collections showed little variation-21 cm (NC 66418) to 27 cm (NC 66414). Root weight per plant was found to be the highest in NC 66422 (1140 g) followed by NC 66410 (1035 g) and NC 66420 (994 g), with the highest oil content in NC 66403 (0.75 per cent), followed by NC 66413 and NC 66414 (0.66 and 0.65 per cent), NC 66404, NC 66407, NC 66415 and NC 66423 (0.60 per cent). In general high root yielding cultures gave low oil content.

Studies of physico-chemical constants showed that most of these collections are characterised with low to medium acid value (13.00 to 37.03), high esters (35.49 to 99.92) and high free vetiverol content (44.25 to 79.09). These high values of free vetiverol are indicative of good quality of oil from odour point of view. Gas chromatography studies revealed that these oils contain khusinol and khusilal, the chemomarkers of North Indian vetiver oils. The superior germplasms identified are NC 66403, NC 66404 and NC 66416, which gave oils of superior quality having excellent odour value.

#### *Aroma characteristics*

Perfumery industry valued vetiver oil due to its sweet, rooty/woody odour. The odour of most of these collections was observed more towards North Indian vetiver style. Some collections possessed high odour value. Whenever there is an increase in khusilal peak in GC, aldehyde note gets increased. Most of these collections possessed dominant odour characters of wild vetiver.

It was observed that NC 66416, which possessed medium root yield with an oil content of 0.65 per cent, free vetiverol to the tune of 79.09 per cent was the best out of the whole lot. The percentage of total vetiverol content is also very high (85.74 per cent). Its overall odour effect is very attractive. This has already been multiplied from the counterpart clones for maintaining its purity and can be utilized straightway.

Other two collections, NC 66403 and NC 66404 form good body, though these initially give South Indian apprehension. These possess low percentage of free vetiverol (44.25 and 48.96 per cent, respectively), but do have total vetiverol to an extent of 69.90 and 68.32 per cent. Odour of NC 66404 is typical rooty/woody, long lasting and having completely round note. Its oil has been commended by a number of perfumers.