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Short Communication

DIVERSITY FOR GRAIN YIELD AND OTHER MORPHO-PHYSIOLOGICAL CHARACTERS IN AMARANTH GERMPLASM

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Amaranth (*Amaranthus pp*) is the world's most nutritious pseudocereal grain crop. Amaranth are now considered a crop with multiple uses and diversified utilization. Genetic variability for various traits has been reported in grain amaranthus (Jain *et al.* 1980; Joshi, 1981; and Pandey, 1984).

Keeping this in view, the present investigation was undertaken to study the amaranth germplasm, comprising 164 accessions received from different sources viz., National Bureau of Plant Genetic Resources, Regional Station, Shimla (150 lines), National Botanical Research Institute, Lucknow (7 lines) and USDA, Minnesota, St. Paul, USA (7 lines) (Table 1). The material was planted in two rows, each accession of 2.5 metre length spaced 50 cm apart at two dates of sowing. The observations on 5 plants for each accession were recorded on plant height, number of leaves, days to 100% flowering, length of inflorescence, days to maturity and seed yield/plant.

Table 2 shows the range of mean values for different characters at two dates of sowing in grain amaranthus. In general, the first date of sowing resulted in taller plants ($\overline{X}$ = 114.45) with more number of leaves ($\overline{X}$ = 42.59), late flowering ($\overline{X}$ = 87.87), longer inflorescence ($\overline{X}$ = 37.17) and late maturity $\overline{X}$ = 120.09) with corresponding mean values of 110.26, 38.58, 8446, 34.99 and 113.26 at second date of sowing. However, second date of sowing with invariably increased yields ($\overline{X}$ = 4.05) proved more promising for comparatively shorter plants, requiring lesser degree days to maturity.

The most promising cultivar appeared to be 'K 436' with highest yield (15-17 g/plant) maturing in just 85 days. This was followed by 'IC 35774' with a grain yield of 10.2-10.8 g/plant and a maturity period of 103-114 days. Few other promising accessions have been selected out of this material and

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Table 1. List of germplasm used in present Investigation

List of accessions	Source
EC 150197, EC 16939, EC 169622, EC 170308, EC 170319, EC 289373, EC 289377 EC 289378, EC 289382, EC 289384, EC 289385, EC 289387, EC 289389, EC 289390, EC 289391, EC 289392, EC 289939, EC289395, EC 289389, EC 289390, EC 289391, EC 289392, EC 289393, EC 289395, EC 289397, EC 289398, EC 289399, EC 289400, EC 284401, IC 5627, IC 7933A, IC 17931, IC 25763, IC 33327, IC 35426, IC 35427, IC 35430, IC 35341, IC 35432, IC 35433, IC 35434, IC 35438, IC 35439, IC 35549, IC 35568, IC 35571, IC 35572, IC 35574, IC 35577, IC 35578, IC 35597 IC 35601, IC 35602, IC 35603, IC 35604, IC35605, IC 35606, IC 35607, IC 35608, IC 35609, IC35610, IC 35633, IC 35634, IC 35688, IC 35691, IC 35713, IC 35698, IC 35714, IC 35775, IC 35716, IC 35717mIC 35718, IC 35718, IC 35719, IC 35720, IC 35722, IC 35723, IC 35726, IC 35727, IC 35737, IC 3572, IC 35735, IC 35741, IC 35742, IC 35746, IC 35747m, IC 35753, IC 35757mIC 35788, IC 35771, IC 35774, IC 35775, IC 35776, IC 35782, IC 35783, IC 38060, IC 38085, IC 38088, IC 38089, IC 35780, IC 38098, IC 38101, IC 38108, IC 38113-1, IC 38119, IC 38127, IC 38143, IC 38269, IC 38280, IC 38330, IC 8414, IC 38605, IC 38665, IC 38669, IC 39420, IC 39984, IC 41989, IC 42008, IC 42009, IC 42211, IC 4225-14, IC 42255-5, IC 42--6, IC 42258-1, IC 42290-II, IC 42314, IC 42340, IC 42345-3, IC 42374 IC 42262-1, IC 42407, IC 42412, IC 42421, IC 42427, IC 42428, C 42429, NC 60628, NC 60633, EC 289386, EC 150196, EC 169606, EC 169614, EC 289367, EC 289369, EC 289371, EC 289372EC 289383, IC 38047, IC38370, IC 38477, IC 38546, IC 41997, IC 42265, IC 42275-2, IC 42246, IC 42276-2, IC 41998, IC 60632	National Bureau of Plant Genetic Resources, Regional Station, Shimla (H.P.)
EC 321552, K 283, K 436, EC 321557, EC 321556, EC 321559, AMONT	US Cooperating Scientist
AG 302/2, AG 21, AG 73, AG 206, AG 205, AG 114, AG 181	NBRI, Lucknow

Table 2. Mean and range of some parameters of growth, development and yield in amaranth

	Plant height (cm)	Number of leaves	days to 100% flowering	Length of inflorescence	Days to maturity	Seed yield (g/plant)
Range	64.5.(59.2) to 162.(160.3)	26.2.(22.1) to 58.1.(57.0)	67.(65) to 117.(122)	22.2.(20.0) to 60.3.(59.0)	99.(83) to 147.(134)	0.3.(0.7) to 15.5.(17.2)
X	114.4.(110.2)	42.6.(38.6)	87.9.(84.5)	37.2.(35.0)	120.(113)	3.45.(4.05)
SE ±	1.41.(1.45)	0.73.(0.69)	0.99.(0.94)	0.57.(0.57)	1.01.(1.31)	0.09.(0.16)

Figures in parenthesis belong to second date of sowing

are being evaluated in replicated trials for yield and associated traits at Palampur and other locations.

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