



P-ISSN: 2349-8528

E-ISSN: 2321-4902

IJCS 2018; 6(6): 1441-1442

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Received: 05-09-2018

Accepted: 10-10-2018

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Studies of Coheritabilty in germplasm accessions of grain amaranth (*Amaranthus hypochondriacus* L.)

RK Yadav**Abstract**

18 accessions of grain amaranth (*Amaranthus hypochondriacus* L.) were studied for the estimation of Coheritabilty among several yield attributing traits. Panicle length, panicle width, test weight and number of panicles / plant were the best indicator for selection of seed yield in accessions of grain amaranth.

Keywords: Coheritabilty, accessions, yield traits

Introduction

Grain amaranth is a pseudo-cereal with high lysine content underutilized crop. It is widely cultivated in hill zone during Kharif season and plains region during Rabi season in India. No research work done on this aspect in this crop. It is also cultivated as intercrop with maize. It is C4 plant. Grain flour is used in making products of biscuits, cakes, laddoo, pasta chapatti etc. For this highly nutritive crop to be a matter of choice of farmers and consumers. Seed yield in grain amaranth being a complex trait. Genetic variability in the accessions is essential for success in a breeding programme. Therefore, a number of accessions were studied. Considering the phenotypic differences among accessions Coheritabilty of different yield traits was estimated.

Materials and Methods

18 germplasm accessions of grain amaranth were grown in Randomized Block Design with three replications during *rabi* 2015-16 at research farm of Indira Gandhi Agricultural University, Raipur (C.G.). All these accessions were obtained from All India Coordinating Centres of Potential Crops. Recommended package of practices were followed to raise the crop growth and development. The crop was maintained under semi irrigated condition. Each genotype was raised in bed size of 3.0 m x 0.9 m. Five randomly competitive plants were taken for observation the traits like as days to flowering, days to maturity, plant height (cm), panicle length (cm), panicle width (cm), test weight (g), number of panicles / plant and grain yield / plant (g). Coheritabilty was estimated according to Singh and Chaudhary (1979) ^[1].

Results and Discussion

Estimation of Coheritabilty was computed for different character pairs exhibited high and positive heritable variations (Table-1). High and positive Coheritabilty value were observed for character pairs like grain yield /plant, panicle length, test weight, number of panicles / plant; panicle length with panicle width, test weight and number of panicles /plant; panicle width with test weight; test weight with panicles / plant. High and negative Coheritabilty values were exhibited for pairs like days to flowering with plant height, panicle length; plant height with test weight.

The high and positive Coheritabilty value observed for yield traits indicated that these traits were little affected by environment. Selection for yield, based on these component characters, should be more effective. Similar finding was also reported by Yadav (1992) ^[2] that higher Coheritabilty values for various yield attributes in Niger.

Therefore, it is suggested that panicle length, panicle width, test weight, test weight and number of panicles / plant were the best indicator for selection of high seed yield in grain amaranth.

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Table 1: Estimation of Coheritabilty among different traits in germplasm accessions of grain amaranth

Traits	Days to flowering	Days to maturity	Plant height (cm)	Panicle length (cm)	Panicle width (cm)	Test weight (g)	No. of panicles / plant	Grain yield / plant(g)
Days to flowering	-	-5.8	47.8	-25.4	3.7	9.5	-11.2	-36.9
Days to maturity(cm)		-	-24.0	22.5	-1.2	-28.8	15.5	20.5
Plant height(cm)			-	1.5	19.0	-20.3	2.7	14.5
Panicle length (cm)				-	46.6	51.1	38.0	43.4
Panicle width(cm)					-	33.8	17.4	73.8
Test weight(g)						-	47.0	29.2
No.of panicles / plant							-	7.3

References

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2. Yadav RK. Coheritabilty in advance generation of Niger. Crop Res. 1992; 5(2):398-40.