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Suitability of different genotypes of Rajgira (*Amaranthus hypochondriacus* L.) for yield and its attributing characters in northern hill zone of Chhattisgarh

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Abstract
Fourteen genotypes of Rajgira were evaluated in Northern Hill Zone of Chhattisgarh state during Rabi season of 2012-2013. Average early days to 50% flowering (77days) were observed in the genotype of ICO 35370. Similarly early maturity (131days) was found in G A -2; short stature (102.9) in RMA -42 and maximum 1000 seed weight (0.93) in RMA-43. All traits of these genotypes may be used for hybridization programme. Pooled data indicated that the genotypes like as ICO 35482, BGA-11, RMA -43, SKNA 808, SKNA 809, RMA-45, ICO-35370, BGA 10-2, GA, Suvarna and BGA-2 were indicated suitable to cultivate in Northern Hill Zone of Chhattisgarh.

Keywords: Rajgira, seed yield, characters, genotypes

Introduction
Rajgira (*Amaranthus hypochondriacus* L.) is a protein, rich pseudo-cereal crop to family Amaranthaceae and characterized by monoecious compound inflorescence. Rajgira (grain amaranth) is having its origin as a grain since 8000 years ago. Rajgira an underutilized crop can be one of the ideal future crop having better nutritional properties endowed with C 4 metabolism suited to survive and thrive to an environmental affected by climate change to achieve food and nutritional security. The exact information about the statistics on acreage and production in India as well as in Chhattisgarh state are still not known. However, as a grain crop it is estimated to be grown in about 40-50 thousands hectare. (Dua *et al*.) [1]. Hand harvested yield have been as high as 1234 kg/ha in Chhattisgarh state (Yadav, 2016) [2]. Selection of suitable genotypes plays a major role in increasing the yield. Information on suitability of different varieties is not available for this agro-climatic zone. So, the present investigation was carried out to see the suitability of different genotypes during Rabi season.

Materials and Methods
A trial was carried out under the ICAR, New Delhi project named All India Co-ordinated Research Network on Underutilized Crops at Rajmohini Devi College of Agricultural & Research Station, Ambikapur, Chhattisgarh during rabi season of 2012 and 2013. Fourteen genotypes including three checks i.e. GA-2, Suvarna and BGA-2 were obtained from project coordinating centres of Gujarat, Bangalore, Rajasthan and Bhubaneswar. All these genotypes were grown in Randomized Block Design with three replications. Each entry was sown in 4.0mx 2.7m (6 rows) plots with row to row distance 45 cm and plant to plant 15 cm. All the recommended packages of practices were followed from each genotype/ replication to record the observations (Table-1).

Results and Discussion
The mean data on different aspects of study likes days to 50 % flowering, days to maturity, plant height (cm), length of inflorescence (cm), 1000 seed weight(g) and seed yield (q/ha) are presented in Table-1. The results indicated that significant yield differences were recorded among all genotypes. Among all entries, entry no. ICO 35482 was found significantly higher in seed yield (18.15q/ha) followed by BGA-11 (17.97 q/ha); RMA-43 (17.3 q/ha); SKNA 808(17.21q/ha); SKNA 809 (15.97 q/ha); RMA -45 (15.92 q/ha); ICO 35370 (15.69 q/ha) and

Table 1: Average of seed yield and its components in grain amaranth genotypes

S.N.	Genotypes	Days to 50% flowering	Days to maturity	Plant height (cm)	Length of inflorescence (cm)	1000 seed weight (g)	Average seed yield (q/ha)of 2012 & 2013
1	ICO 35482	78	134.5	127.5	23.8	0.87	18.15
2	ICO 35370	77	134.0	120.6	31.5	0.79	15.69
3	SKNA 808	82.5	142.5	128.6	24.1	0.77	17.21
4	SKNA-809	84	142.5	123.2	23.4	0.70	15.97
5	BGA-04	81.5	141.5	122.8	24.0	0.65	09.8
6	BGA-11	76.5	136.5	136.3	24.2	0.62	17.97
7	BGA 10-2	83	142.5	122.0	19.0	0.70	15.58
8	BGA-12	82	143.5	120.7	20.1	0.58	13.5
9	RMA-42	87	134.0	102.9	23.9	0.35	6.94
10	RMA-43	88	145.0	142.4	27.3	0.93	17.3
11	RMA-45	82	134.1	140.5	24.7	0.68	15.92
12	GA-2(C)	79	131.0	124.6	27.5	0.55	15.83
13	Suvarna (C)	87	143.1	121.1	15.8	0.42	14.51
14	BGA-2 (C)	87	141.2	120.5	18.9	0.51	14.72

C.D. at 5 % ----------4.06

BGA 10-2 (15.58 q/ha) including National check varieties of GA -2 (15.83q/ha), Suvarna (14.51q/ha) and BGA-2 (14.76q/ha) except the entry of RMA-42 (6.94q/ha), BGA-4 (9.8 q/ha) and BGA-12 (13.5q/ha). The average early days to 50% flowering (77 days) was observed in ICO 35370 with maximum length of inflorescence (31.5 cm). Early maturity (131days) was exhibited in GA-2; short stature (102.9 cm) in RMA-42 and maximum 1000 seed weight (0.93g) in RMA-43. These traits may be used for hybridization programme in grain amaranth (Yadav, 2013) [2]. On the other hand,pooled data exhibited the genotypes like ICO 35482, BGA-11,RMA-43,SKNA 808, SKNA 809, RMA-45, ICO-35370, BGA 10-2, GA-2, Suvarna and BGA-2 were identified and recommended to grown in Northern Hill Zone of Chhattisgarh state.

References

1. Dua RP, Raiger HL, Phogat BS, Sharma SK. Underutilized crops improved varieties and cultivation practices. ICAR publication. 2009, 66.
2. Yadav RK. Complied project report from 2001-2013 on Underutilized Crops. College of Agriculture & Research Station, IGKV, Ambikapur Chhattisgarh, 2013, 28.