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SHORT COMMUNICATION

EVALUATION OF CHANDERSUR (*LEPIDIUM SATIVUM* L.) GENOTYPES FOR SEED YIELD UNDER HARYANA CONDITIONS

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SUMMARY

Chandersur (*Lepidium sativum* L.) is cultivated for food, feed and medicinal supplements. It is also useful to increase the milk production in animals. The field experiment was conducted using eight genotypes of chandersur in RBD during *rabi* 2017-18 at Research Farm of MAP Section, Department of Genetics and Plant Breeding, CCS Haryana Agricultural University, Hisar. In the present study, wide genetic variability was observed for days to 50 per cent flowering, plant height (cm), number of branches/ plant, length of siliqua (mm), number of siliqua/plant and seed yield/plot, except number of seeds/ siliqua. Highest seed yield/plot was recorded for HLS-15 (1898.67 kg/ha) followed by ALS-1 (1426.00 kg/ha), HLS-4 (1356.67 kg/ha), GA-1 (1345.33 kg/ha) and HLS 27 (1245.33 kg/ha). The genotypes HLS-15 was found early in days to 50 per cent flowering (70.67 days), medium in height (105.07), number of branches/plant (7.33) and length of siliqua (4.9 mm) and maximum in number of siliqua/plant (1757.87) as well as in seed yield (1898.67 kg/ha), therefore, it has good potential for commercial cultivation, but before it to be recommended, it's testing over time and space is needed.

Keywords : Seed yield, contributing characters, chandersur, elite genotypes

Chandersur (*Lepidium sativum* L.) is an important herbaceous crop plant, it belongs to family Brassicaceae. It was originated in Ethiopia and introduced in Asia, Europe and USA. In India, it is grown in patches in MP, UP, Rajasthan, Gujarat and Maharastra (Chondabhai, 2015). It is cultivated for food, feed and medicinal supplements. In addition to energy, chandersur seeds provide vitamins (Folic acid, vitamine A & C) and minerals (Fe & Ca) (Kumari, 2013). Its seeds have high oil content (26.4%) with desirable levels of linolenic acid, high protein content (30.6%) with very high proportion of globulin (31.2%) and gluteline (29.3%). In vitro digestibility of protein was found 62.5 per cent. The sweet taste of seed was due to presence of high total soluble sugars (6.4%) (Patel, 1997).

Chandersur seeds are good tonic when given for feeding to the lactating animals, mainly after calving to meet the strain and drain of calving for first two weeks along with bajra grain, wheat brawn, methi, ginger, kalijiri, jiggery and oil. According to Paranjape and Mehta (2004), chandursur is useful traditional tonic to increase height of children and also used as tonic for eyes. It is also useful to increase the milk production in animals. Day-by-day, the population of milch animals is increasing, but their productivity is very low due to poor quality and limited quantity of fodders (Sharma, 2014). It is true in case of dairy enterprises, where consistent supply of green fodder is imperative to sustain milk production (Somashekar *et al*., 2014). Therefore, keeping the nutritional quality and health of animals in view, chandersur could be utilized as animal feed/fodder to increase the milk production. The assessment of genotypes plays major role in planning breeding, to develop superior cultivars or hybrids. In general, the genetically diverse parents are utilized to obtain the desirable recomebinents in segerating populations (Singh *et al*., 2010). Therefore, the present study on evaluation of chandersur genotypes was carried out.

To conduct the field experiment, eight genotypes of chandersur were grown in RBD during *rabi* 2017-18 at Research Farm of MAP Section, Department of Genetics and Plant Breeding, CCS Haryana Agriculural University, Hisar located 29^{o} 10' N latitude and 75^{o} 46' E longitude with an elevation of 215.2m above the mean sea level. The soil of Hisar was found sandy loam (Typic Ustochrepts), tested medium in organic carbon (0.046%), available nitrogen (191kg/ha) and phosphorus (14kg/ha) and

high in available potassium (340kg/ha). Weather parameters data recorded during cropping season, *rabi* 2017- 18 is presented in Fig.1. Each genotype was planted in six rows of four meter length spacing 30cm apart to each other. All the recommended package of practices were carried out to raise a good crop. Data were recorded on five randomly selected plants for days to 50 per cent flowering, plant height (cm), number of branches/plant, length of siliqua (mm), number of siliqua/plant, number of seeds/siliqua and seed yield/plot. The data were subjected was subjected statistical analysis as per standard procedure.

The analysis of variance revealed the significant differences among the genotypes for the all characters studied, except number of siliqua, which reflects the presence of genetic variability for these characters.

In the present investigation, it was revealed from table 1 that the genotype HLS-4 was earliest in flowering (68.33days), it was followed by MLS-1007 (69.00 days), ALS-4 (70.00 days), HLS-1 (70.33 days) and HLS-15 (70.67 days). But, the genotype GA-1 was late in flowering, its days to 50% was recorded (74.00days) followed by MLS-10-10 (73.00days) and MLS-1001 (72.33 days).

It is evident from the data on plant height (cm) that it ranges from 96.73 to 112.93 cm. The genotype MLS-10-10 was recorded shortest in plant height (96.73 cm) followed by HLS-15 (105.07cm),HLS-4 (107.53cm) and GA-1 (108.83cm). Opposite to this, the genotype MLS-1007 was recorded tallest, measured 112.93cm long, followed by ALS-1 (112.80cm), MLS-1001 (111.67cm) and HLS-27 (110.67cm). For number of branches/plant, it was observed that the genotype GA-1 recorded the maximum mean value (6.07) followed by HLS-4 (8.53) and HLS-27 (8.40). However, the genotype MLS-1007 followed by MLS-1001 (6.80), HLS-15 (7.33), MLS-10-10 (7.33) and ALS-1 (7.40).

While comparing the siliqua length of different genotypes of chandesur, it was noticed that MLS-1001 attained the maximum siliqua length (5.1mm) followed by HLS-4 (5.0mm), GA-1 (5.0mm), HLS-27 (4.9mm) and on other hand, MLS-10-10 achieved the minimum siliqua length 4.6mm followed by ALS-1 (4.7mm). In case of number of seeds/siliqua, it is self evident from Table 1 that no genetic variability was found available in chandersur for this character. Only two seeds were present in each siliqua in all the genotypes. The results on number of siliqua/plant exhibited wide variability, it ranged from 1476.20 to 1757.87g. The maximum value for this character was recorded for HLS-15(1757.87) followed by GA-1(1738.77g), HLS-4 (1724.60g) and HLS-27 (1708.93g). Opposite to this, minimum number of siliqua was recorded for ALS-1 (1476.20g) followed by MLS-1001 (1478.20g) and MLS-10-10 (1484.40g).

In the present study, wide genetic variability was observed for seed yield, it ranged from 920.00 to 1898.67kg/ha (Fig. 2.). Highest seed yield was recorded for HLS-15 (1898.67kg/ha) followed by ALS-1 (1426.00 kg/ha), HLS-4 (1356.67 kg/ha), GA-1 (1345.33 kg/ha) and HLS 27 (1245.33 kg/ha), but the genotype MLS-10-10 produced lowest seed yield/

TABLE 1
Mean performance of chandersur genotypes for different characters

Genotypes	Days to 50% flowering	Plant height (cm)	No. of branches	Length of siliqua (mm)	No. of siliqua	No. of siliqua/plant	Seed yield/ plot (g)
MLS-1007	69.00	112.93	11.07	4.87	2.00	1680.47	1234.67
HLS-4	70.00	107.53	13.53	5.00	2.00	1724.60	1356.67
HLS-27	68.33	110.67	13.40	4.87	2.00	1708.93	1245.33
HLS-15	70.67	105.07	13.33	4.93	2.00	1757.87	1898.67
ALS-1	70.33	112.80	12.40	4.67	2.00	1476.20	1426.00
MLS-1001	72.33	111.67	11.80	5.07	2.00	1478.20	1023.33
MLS-10-10	73.00	96.73	12.33	4.60	2.00	1484.40	920.00
GA-1	74.00	108.83	13.53	4.97	2.00	1378.77	1345.33
Mean	70.96	108.28	12.68	4.90	2.00	1586.18	1314.31
Range	68.33-74.00	96.73-112.93	11.07-13.53	0.46-0.51	2.00-		
2.00	1476.20-1757.87	920.00-1898.67					
CD (5%)	1.99	8.62	1.99	NA	NA	NA	464.60
SE(m)	0.67	2.91	0.67	0.17	-	134.56	156.91
SE(d)	0.95	4.12	0.95	0.24	-	190.30	221.91
CV	1.89	5.38	10.61	7.0	-	16.97	24.02

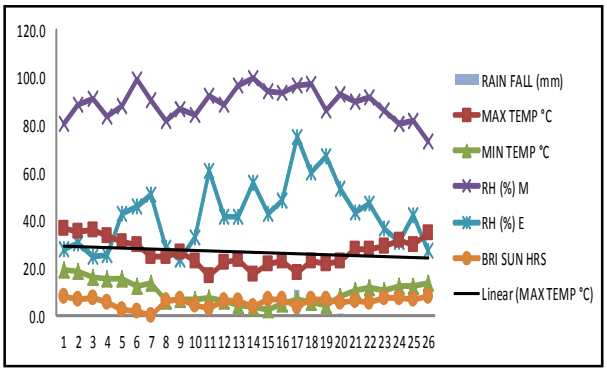

Fig. 1. Weather data recorded during crop season, rabi 2017-18.

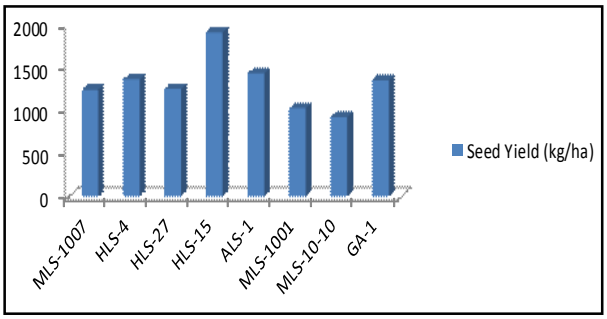

Fig. 2. Seed yield (kg/ha) of different chandersur genotypes.

plot (920.00kg/ha). Each genotype is different from the others for seed yield and its most of contributing characters. The seed yield of crop genotypes is the combined reflection of contributing components, which depends on plant phenology along with environmental conditions. Above finding were supported by Said, (2012), Bedassa *et al.* (2013) and Chondabhai, (2015).

CONCLUSION

It may be concluded that chandersur genotypes HLS-15 early in days to flowering (70.67days), medium in height (105.07), number of branches/plant (7.33) and length of siliqua (4.9mm) and maximum in number of siliqua/plant (1757.87) as well as in seed yield/plot (1898.67g), therefore, it has good potential for commercial cultivation, but before it to be recommended, it's testing over time and space is needed.

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