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Correlation between Plant Height and Days to Flower in *Erucasativa* L. (Rocket Plant)

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ABSTRACT

Correlation between plant height and days to flower has been studied In three varietal populations of rocket (*Erucasativa* L.) and their six F_1hybrids . Variety L.V.I. attained the minimum height about 53 c.m. and took minimum days to start flowering i.e. 36 days however variety RTM – 314 got the maximum height i.e. 62 c.m. and shown flowering in 46 days. Variety TMLC has shown the intermediate value where height of the plant was 59 c.m. and started flowering in 49 days. A huge range of variation is observed in the population of six hybrids of these three varieties in the above said parameter where the negative correlation is found between plant height and days to flower.

Keywords: *Erucasativa* L., Hybrid, Population, Correlation, Variety, Allogamous, Heterosis

INTRODUCTION

We have scanty informations regarding the genetic make up of the varietal populations of agriculturally important crop plants including rocket although it bears a great significance in plant breeding. An earlier study has indicated that the varietal population of rocket having maximum plant height took intermediate time for flowering (Prasad &Shrivastava, 1993 a). The present work has, therefore , been undertaken to see whether plant height bears any relationship with days to flower in rocket.

MATERIAL AND METHODS

Three varietal populations of rocket viz, Taramira Ludhiana Composite (TMLC), RajesthanTaramira (RTM- 314) and Local Variety Ichak (L.V.I.) and their six hybrids viz, TMLC (F) X L.V.I. (M), TMLC (F) X RTM-314 (M), RTM-314 (F) X TMLC(M), RTM -314 (F) X L.V.I. (M), L.V.I. (F) X RTM-314 (M), L.V.I. (F) X TMLC (M) constituted the materials for present investigation. Under controlled condition, the plants of the hybrids along with their parents were grown in the field during the year 2019- 2020.

The seeds of the populations were sown simultaneously to raise the plants at a distance of 30cm in rows under controlled conditions. No chemicals or fertilizers were used .

In order to obtain mean plant height, height of 25 mature plants were taken in each population. The date of appearance of the first flower and its difference from the date of sowing gave Days to flower.

RESULTS AND DISCUSSION

The population differed considerably from each other in plant height and days to flower (Table 1). RTM -314 had maximum plant height while L.V.I. the minimum. On the other hand TMLC took maximum days for flowering while L.V.I. minimum. The correlation analysis revealed a significant negative correlation between the two parameters ($r = 0.729$, $p > 0.001$).

(Table 1) Mean Plant Height, Days To Flower

MATERIALS.	PLANT HEIGHT (CM)*a MEAN ± SE	CV%	RANGE	DAYS TO FLOWER*b MEAN± SE	CV%
TMLC	79.05 ± 4.96	20.40%	(57-77)	40. 5± 0.34	2.66%
TMLC X L.V.I.	81.24 ± 3.33	12.98%	(72-96)	45.1 ±0.31	2.19%
TMLC X RTM-314	70.31 ± 4.02	18.11%	(55-90)	46 ± 0.25	1.76%
RTM -314	74.52 ± 4.42	18.8%	(57-77)	37.3 ± 0.16	1.19%
RTM -314 X TMLC	74.81 ± 4.57	19.35%	(57-94)	44.8 ± 0.38	2.72%
RTM -314 X L.V.I.	81.30 ± 3.32	13.02%	(69-96)	48.7 ± 0.25	1.87%
L.V.I.	75.39 ± 3.20	15.05%	(47-76)	33.7 ± 0.29	2.78%
L.V.I. X TMLC	66.04 ± 2.82	13.50%	(54-76)	33.7 ± 0.29	2.78%
L.V.I. X RTM-314	76.50 ± 3.74	15.47%	(63-96)	34.4 ± 0.37	2.79%

***Based on the study of 25 plants in each form**
***a. Mean difference of all the hybrid is significant from each other at 5% level.**

***b. Me an differenceof the hybrid TMLCXL.V.I.,TMLCXRTM-314, that of RTM-314 XTML C, RTM-314 XL. V.I., that of L.V.I.XTMLC,L.V.I.XRTM-314 is significant from each other 1% or 5% level.**
Me an difference of hybrid is significant from their parent.

The populations have complex characters and their genetic make up is related with the reproductive biology of the species. In genetics, the concept of population is related as a rule to allogamous species only (Dobzhansky, 1950;

Takhtajgyan 1955). The parameters like plant height and days to flower are of particular significance in relation to yield. Intervarietal differences in these parameters indicate their genotypic peculiarity. F1 hybrids, in general , were superior to their parents which may be attributed to heterosis as a result of increased heterozygosity (Prasad &Shrivastava, 1993 b).

CONCLUSION

Our results demonstrate that different varieties of rocket vary among themselves in various characters, indicating their genotypic peculiarity. These variations in different varieties are also dependent upon the different climatic conditions present in the different regions of our country.Present study thus indicates that the plant height and days to flower are negatively correlated in rocket.

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