Proc. 5th Conf. Agron., Zagazig, 13-15 Sept., 1992, Vol. (1) : 323 - 333

STUDIES ON HETEROSIS AND COMBINING ABILITY IN FABA BEANS (Vicia faba L.) II- INFLORESCENSE AND SHEDDING PERCENTAGE

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ABSTRACT

Positive heterosis was present for the number of flowers/main stem. The three crosses N A 112 x Giza 2, N A 112 x Giza 3 and 61/536/69 NEB 319 exhibited significant negative heterosis for shedding percentage. General and specific combining ability (GCA and SCA) were significant for the number of flowers/main stem, number of pods/main stem and shedding percentage. High values of GCA/SCA were also obtained for the three traits. Line N A 112 seems to be the best combiner for low shedding percentage and line 61/536/69 and Giza 3 for high number of flowers and pods/main stem. SCA effects for low shedding percentage was manifested in the three crosses; N A 112 x Giza 2; N A 112 x Giza 3 and N A 112 x Sevella gaint. The cross Giza 3 x 61/536/69 exhibited the highest SCA effects for higher number of flowers/main stem. Low heritability estimates were obtained for the three tarits. The additive (D) and dominance components (H_1) were significant for the number of flowers and pods/main stem. The overall dominance of heterozygous loci (H^2) was significant for the three traits.

The correlation of parental means and their order of dominance shows that increaser genes were dominant over decreasers for number of flowers and shedding, and few number of pods was dominant over high ones. As for parental lines, the line N A 112 contains most of the dominant genes responsible for high number of flowers and low shedding. NEB 319 contains most of the recessive ones. Giza 3 contains most of dominant genes for high number of pods/main stem, meanwhile, N A 112 contains the most recessive ones.

INTRODUCTION

Literature review on the inheritance of shedding in faba bean is scant. El-Hosary,(1990) reported significant general and specific Combining ability (GCA and SCA) for the trait. The type of gene action postulated was additive and additive by additive. Studies on the nature of dominance revealed the presence of over-dominance for shedding of pods, and partial dominance for shedding of flowers and total shedding percentage. High heritability estimates were also given for these traits. This work was intended to gather some informations of flowering, pod retention and shedding.

MATERIALS AND METHODS

Data pertaining to the parental lines, F_1 hybrid combinations were given and in the