

**DIALLEL CROSSES ANALYSIS FOR IMPROVING
FABA BEAN (*Vicia faba* L.) UNDER RAIN-FED
CONDITIONS
2- STRESS SUSCEPTIBILITY INDEX
(DROUGHT TOLERANCE)**

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The present study was conducted during 1998/99 and 1999/2000 seasons to estimate the type and relative amount of genetic variance components and their interactions with experimental conditions for yield and yield components in faba bean. A half diallel set of crosses involving seven parental varieties namely, Giza blanka (P₁), Giza-717 (P₂), Triple white (P₃), Giza-643 (P₄), Giza-461 (P₅), Moshtohor-109 (P₆) and Moshtohor-103 (P₇) were utilized under two experimental conditions, the first was normally irrigated at once every 45 days in addition to the amount of rainfall, and the second, dry method of sowing was used with one supplemental irrigation at sowing, then plants were left to grow under rainfall conditions. The parents and their 21 F₁-crosses were evaluated in a randomized complete block design with three replications in Maryout Research Station, Alexandria Governorate. Data were recorded on individual plant mean basis and analyzed by the procedure developed by Griffing (1956) as model-1 method-2. The combined analysis was calculated for the two experimental conditions.

The obtained results could be summarized as follows:
Mean squares of genotypes parents, crosses and parents vs. crosses were highly significant for stress susceptibility index (SI) of yield and its components except parents vs. crosses for SI for number of pods/plant and 100-seed weight.

The mean squares associated with general and specific combining abilities were significant for SI of yield and the three yield components. Also, low general / specific-combining ability (G.C.A/S.C.A.) ratio of less than unity were detected for number of seeds/plant, seed yield/plant and 100-seed weight.

The parental cv. Giza-461 (P₅) seemed to be the best combiner for SI of number of seeds and seed yield/plant. At the