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Effect of Some Chemical and Physical Mutagens on *Vicia Vaba*, L. IV. Sepctrum of chlorophyll mutations induced in M_2 and M_3 generations

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THE PRESENT investigation was carried out to study the effect of x-ray, EA and DES, and the combinations between them on spectrum of chlorophyll mutations induced in M_2 and M_3, on two varieties of Vicia faba namely Giza 1 and Giza 2. Air dried seeds of each of the two varieties were -irradiated with doses of 0.00, 3, 6, 9 and 12 kr, or treated with EA in concentrations: 0.05, 0.15, 0.25 and 0.5%, or DES 0.015, 0.020, 0.025 and 0.030 M selutions. For combined treatment of radiation and chemicals some seeds of each variety were treated by 6 kr of -rays followed by DES 0.020 or 0.025 M or with -ray 9 kr followed by EA 0.25 or 0.50%.

M_1, M_2 and M_3 generations were grown through the three successive seasons (1973-74, 1974-75 and 1975-76).

It was found that the spectrum of chloropyll mutations was affected by different doses and different mutagens. Thus, in case of X-rays, albina type decreased by increasing dose from 3 kr to 9 kr, while xantha and viridis types increased by increasing it in the same range. In case of EA, the viridis type increased by increasing the concentration from 0.05 to 0.50%, while the two other types, albina and xantha did not show any difinite trend.

Spectrum of chlorophyll mutations was affected by different mutagens. Thus, after EA the most frequent type was viridis, followed by xantha type, while in all other treatments the xantha type was the highest one followed by albina.

No varietal differences in spectrum of chlorophyll mutations were observed between the two varieties Giza 1 and Giza 2.

Irradiation produces mutation spectra and mutation frequency which are different from those induced by chemical mutagens (Favret 1960 and 1963, Bremer-Renders 1964, Monti 1968, and Desai 1969, Marki and Viann 1970, Rumulu 1970, Hussein and Abdalla 1974, and Hussein *et al.* 1974).