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Gamma Rays and EMS Induced Chlorophyll Mutations in Grasspea (*Lathyrus sativus* L.)

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Abstract—*A comparative study of frequency and spectrum of chlorophyll mutations induced by Gamma rays (400, 500 and 600 Gy), EMS (0.5% and 1 %) and their combination treatments (400Gy+0.5% and 400Gy+1%) in M2 generation was made in three grasspea varieties viz; Nirmal, BioL-212 and Berhampur local. The mutation frequency was estimated on M2 seedling basis. Broad spectrum of chlorophyll mutations which includes Albino, Xantha, Albo-Xantha, Xanthalba, Albo-Viridis, Virescence, Chlorina, Maculata, Albescence and Tigrina types were observed with different frequencies in all the three varieties in M_2 generation. Out of total (114.93%) chlorophyll mutation frequency, Chlorina type (17.93%) exhibited maximum whereas Albescence type (2.16%) showed lowest frequency. Total (Pooled) chlorophyll mutations frequency on variety basis indicated that out of total chlorophyll mutation frequency 43.06% (maximum) were produced in var. Nirmal, followed by BioL-212 (36.78%) and Berhampur local (35.09%). Frequency of chlorophyll mutations on mutagen basis indicated that the gamma rays produced highest frequency (53.18%) followed by combined treatment of gamma rays and EMS (32.93%) where as chemical mutagen (EMS) produced lowest frequency (28.82%). The frequency and spectrum of chlorophyll mutations in grasspea are found to be both mutagen and variety dependent.*

Keywords*: Grasspea, EMS, gamma rays, chlorophyll mutations.*