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**Development of high yielding and large seed mutants of Trombay groundnut (*Arachis hypogaea* L.). using electron beam irradiation**

Electron beam accelerators have been used as radiation sources for a variety of industrial and biological applications. Such a facility has been used for mutation breeding experiments involving improvement of agronomic traits in groundnut (*Arachis hypogaea* L.). A 10 MeV linear accelerator facility was used for seed irradiation and standardized for low dose application (0.1 to 1 kGy) in pulse mode using un-scanned scattered beam. A linear dose response was found for the growth reduction of seedlings of irradiated M1 plants in five groundnut genotypes (TAG 24, TG 26, TG 51, TG 68 & TG 69). Significant genotypic differences were observed (probit and ANOVA analysis) for seedling height reduction for different electron beam dose treatments. Among these genotypes, TAG 24, TG 26 and TG 68showed the same GR50 value (240 Gy) followed by TG 69 (175 Gy) and TG 51 (111 Gy) to electron beam. After the dose standardization for each genotype, 200 seeds of TG 26 and TG 68 were irradiated with 150Gy, 200Gy and 250Gy of electron beam for improving their yield contributing traits. From the mutagenized population (at M3 and M4) of TG 26, two high yielding mutants (one with large seed) were isolated. Another four high yielding mutants, a disease mimic leaf mutant and a small leaflet mutant were isolated from TG 68 electron beam irradiated population in the M3 generation. These high yielding mutants were field evaluated and exhibited significant higher yield compared to their parents and check varieties.