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Banana (*Musa* spp.) is an important crop in Sri Lanka and a few popular cultivars are grown on a commercial scale. To increase the farmer income important agronomic characters should be improved. Edible banana cultivars are seed sterile hence, genetic improvement through conventional methods is extremely difficult. Therefore there is a great potential in the use of mutation techniques and biotechnology in improving this crop. Dwarf Cavendish which has marginal demands are relatively short in height, about 2 m and thus resist wind damages. Cavendish banana has a higher demand both in export and local markets. Shoot-tips of Dwarf Cavendish were irradiated at 0 Gy (control) and 35 Gy in a gamma cell with <sup>60</sup>Co source. Each had 300 tips and after irradiation the shoots were multiplied *in vitro* for 8 subcultures. Some phenotypic variation in leaf deformation and changes in pigmentation were observed in nursery plants. A few field-grown plants also showed bunch and fruit abnormalities. With respect to fruit initiation, plant height and bunch weight, the mean values of the irradiated plants did not differ significantly from control plants. However in 2 plants, early fruiting and high yield were shown. The study supports the fact that, *in vitro* mutation induction could create desirable as well as undesirable variants. Therefore a selection system is needed to screen large mutagen treated populations.