B-14: Induction of mutations in tomato variety solar set

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Tomato (*Lycopersicon esculentum*) occupies an outstanding place among vegetables. It gives income to growers, has export potential, improves the supply of vitamins and minerals in human nutrition and can potentially generate employment in the urban and rural areas.

However, the production of tomatoes in Sri Lanka is beset by many problems. Bacterial Wilt caused by *Pseudomonas solanacearum* is the major constraint for tomato production in Sri Lanka. Therefore, there is an urgent need for tomato genotypes having resistance to Bacterial Wilt along with good fruit quality characteristics. This study was initiated with the objective of inducing mutations in Solar Set Variety.

This study was carried out in the greenhouse at Horticultural Research & Development Institute, Gannoruwa during Yala 1995. The variety, Solar Set is an introduction and is highly susceptible to bacterial wilt. The moisture content of the seeds of the tomato variety solar set which has a good red colour and big fruit size was adjusted to 14% by storing the seeds in a desiccator containing 60% glycerol for 4 days. These seeds were exposed to γ irradiation from Co 60 source. The doses given were 0, 25, 30, 35, 40, 45, 50 krad. The experimental design was Randomized Complete Block Design with 3 replicates. The seeds (50 seeds/replicate) were sown in plastic trays and a germination count was taken after 3 days. The seedling heights were recorded in each replicate after the 1st leaf ceased growth.

The statistical analysis revealed that there are significant differences among treatments. It was observed that at higher doses like 45 and 50 kr the germination was less than 50%. At dose range 25-50 kr the germination was higher than 50%.

No significant differences appeared in seedling height at 0 and 25 kr. At dose range 35-40 kr, 50% growth reduction in seedling height is observed.

The LD_{50} value for the induction of mutants in tomato variety Solar Set is found to be 35.6 kr. It is the best dose value for the induction of beneficial mutants in tomato variety, solar set by γ rays.