

**B-112: Use of physical and chemical mutagens for the improvement of traditional rice varieties**

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Many traditional rice varieties in Sri Lanka, have many good traits: but, also possess a few undesirable characters. This study was carried out with the objective of eliminating lodging in traditional rice varieties by mutation induction and thereby improving the plant type.

Four traditional rice varieties (viz. Suwanda samba, Murungakayan, Oddavalan, Hetada wee) and 1 new improved variety (BG 68) which have poor lodging resistance were irradiated with different doses of gamma radiation. Two varieties, Murungakayan and Oddavalan, were selected to observe the morphological and cytological characters of M1 generation. The same 2 varieties were treated with a chemical mutagen, N-methyl-N-nitroso urea (MNU).

The growth reduction significantly correlated with the increasing dose of gamma radiation. The LD<sub>50</sub> value for all these traditional indica rice varieties ranged from 6.45 - 9.03 C/kg. The performance of the M1 generation of Murungakayan and Oddavalan showed that there is a significant effect of gamma irradiation on chlorophyll variants and pollen sterility. The most frequent type of variant was tip-burn yellow. Chemical induction of mutations by MNU treatment revealed that the frequency of mutation varied with the cell division stage of the fertilized egg cell.