PRELIMINARY INVESTIGATIONS ON MUTAGENIC EFFECTS OF GAMMA RADIATION ON SOME INDIGENOUS COLD-TOLERANT RICE VARIETIES

Ranjini Peiris, L. Ratnayake and S.D.G. Jayawardena,
Central Agricultural Research Institute,
Gannoruwa, Peradeniya.

This investigation was carried out to study the effects of gamma radiation on rice and to select rice mutants with superior agro-botanical characters. Rice seeds from four varieties - Hathiel, Muthumanikkam, Muhudukiriyal and H_6, were exposed to gamma radiation at dosages of 15,20,25,30 and 40 Kr. The experimental design was complete randomized design.

The results revealed that in all tested varieties the dosages of 15,20,25 Kr. did not greatly reduce the percentage of germination while 40 Kr. killed most of the seeds. The seedling height and root length which were measured when the first leaf had ceased growth were reduced following dosages of 30 and 40 Kr. The reduction in plant height and root length was not great in 15 and 20 Kr. treatments. In the tested varieties 30-40% growth reduction over the controls was observed in the 25-30 Kr. dose range. Seedling survival measurement at 21 days after sowing showed that 40 Kr. treatment had markedly reduced the seedling survival in all four varieties. Chlorophyll-deficiency mutations such as albina, xantha and striata were observed at varying frequencies.

Therefore, the estimated desirable dose range for these tested Indica rice varieties was found to be 25-30 Kr. and further investigations in the field to select desirable mutants have to be carried out.

09th Dec. 1987 (Thursday) 09.15 a.m. - 09. 30 a.m.