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MUTANT VARIETIES DEVELOPED IN THE PHILIPPINES

PARC-1, the Philippine Atomic Rice Cultivar 1, was the first mutant rice variety developed by the Philippine Atomic Energy Commission, now Department of Science and Technology-Philippine Nuclear Research Institute (DOST-PNRI). From 1970 to 1976, four more mutant rice varieties followed but only two passed registration with the Philippine Seed Board, now the National Seed Industry Council (NSIC), Bureau of Plant Industry, Department of Agriculture. Rice improvement programmes then shifted to hybrid development. It was only recently that rice mutation breeding was revived for novel characteristics, like resistance or tolerance to stresses. Mutation induction by gamma irradiation was also tried on other crops, especially those that are asexually-propagated. Radio-sensitivity studies were conducted on planting materials of asexually propagated plants (stem cuttings and tissue culture explants) with effective dose levels of gamma rays from a Cobalt-60 source (Gammacell 220). Mutation detection and selection of desirable mutants based on specific objectives set for the particular crop were conducted in succeeding generations. Line purification and testing of stability of mutated characteristics were done in more advanced generations. The selected mutants were compared with the original material as well as similar existing commercial varieties. For rice and banana, National Cooperative Testing for several cropping seasons is required for variety registration. For cashew, on-site evaluation for three seasons is required, while a new ornamental plant variety must pass evaluation by the Technical Working Group and customer rating in a public exhibition. Mutant varieties were developed and registered by institutions other than DOST-PNRI. Gamma irradiation is a proven means of developing mutant varieties of rice and asexually propagated crops with improved or novel characteristics that are useful to the Filipino people.

Country or International Organization

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