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YIELD VARIATION AND GENETIC DIVERSITY AMONG KEWAL LOCAL RICE MUTANT LINES FROM INDONESIA BASED ON STS MARKERS

Mutation induction is one of the purposeful approaches to increase genetic variability for developing new cultivars. Local rice variety Kewal was exposed to gamma rays with the aim of inducing stable mutants with desirable traits. The objectives of this research were to evaluate yield and yield components of local rice mutant lines, and to analyse the genetic diversity and relationship among mutant lines using STS markers. The study was conducted during the growing season of 2012-2013. The experiment was laid out in a randomized block design with four replications. Six mutant lines and two parental lines as control were tested for evaluation of yield and yield components under 16 environments. To evaluate genetic variation among selected mutant lines and their discrimination from parental lines at the molecular level, a cluster analysis was performed using Unweighted Pair Group Method with Arithmetic Mean (UPGMA) in the NTSYS software. The results showed that four mutant lines, including OBS-1814/PsJ, OBS-1813/PsJ, OBS-1801/PsJ and OBS-1802/PsJ produced the highest grain yield compared to the other mutant lines and the parents. Based on 13 STS markers used for clustering analysis, all mutants showed 100% difference from their parent. However, these mutants did not differ from each other at the tested loci. Based on these studies two promising mutant lines could be released as new rice mutant varieties.

Country or International Organization

Center For Isotopes and Radiation Application, Indonesia Nuclear Energy Agency

Author: Dr DEWI, Azri Kusuma (Center For Isotopes and Radiation Application, Indonesia National Nuclear Energy Agency (CIRA BATAN))

Co-authors: Mrs DWIMAHYANI, Ita (Center For Isotopes and Radiation Application, Indonesia National Nuclear Energy Agency (CIRA BATAN)); Dr BASYIRIN, Reflinur (Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development)

Presenters: Dr DEWI, Azri Kusuma (Center For Isotopes and Radiation Application, Indonesia National Nuclear Energy Agency (CIRA BATAN)); Dr BASYIRIN, Reflinur (Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development)

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