

Forwards

Japan International Research Center for Agricultural Sciences (JIRCAS) is conducting a collaborative study on “Blast Research Network for Stable Rice Production” with the International Rice Research Institute (IRRI) in the Philippines, one of international organizations of Consultative Group on International Agricultural Research (CGIAR) center, since 2006. Main objective of this project is to develop universal differential system for blast pathogen and resistance genes in rice varieties as a first step of building up the durable resistant system for blast which is the most serious rice disease in all over the world, having participation of NARES partners from Korea, China, Vietnam, Philippines, Indonesia, and Laos. A special workshop on “Development and characterization of blast resistance using differential varieties in rice” of this research project was held at Changsha, Hunan, China, in October 2007 as a satellite meeting of the International Rice Blast Congress. In the workshop, some application research with differential system, monitoring blast races in Japan, conventional genetic analysis for blast resistance, characterization of monogenic lines and near isogenic lines for blast resistance gene as the differential varieties, new designation system using monogenic lines for developing the system, and identification of resistance genes using DNA markers, were presented. These results and achievements are arranged and demonstrated as the protocols and manuals for pathological studies and conventional genetic analyses for blast resistance based on the differential system in this working report. The resistance genes and their selection DNA markers have been reported by many scientists. Those information were also reviewed for clarifying the effectiveness, limitations, and problems in this report to understand the research situation of resistance genes and to apply them for marker aided selection (MAS) of resistance genes in rice breeding. The reviews and reports in this JIRCAS working report will help in understanding output of blast studies for improvement of blast resistance in rice varieties. I would like to share these information among all scientists, and hope our collaboration based on the differential system will contributed for the developing a durable protection and stable production methods in rice.

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