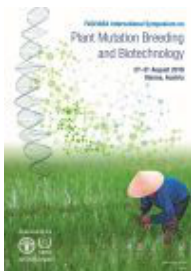


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YIELD AND GRAIN QUALITY IMPROVEMENT OF RICE THROUGH INDUCED MUTATION

Even though, there are more than eighty local recommended rice varieties in Sri Lanka, only few are cultivated at present with farmers' preference. At 362 is one of the most popular rice varieties grown island-wide due to its higher yield and adaptability to vast environmental conditions. It is a red pericarp rice variety belonging to the 3.5-month maturity group. However, this trait creates marketing problems in the harvesting period, since consumers do not prefer red pericarp rice in Sri Lanka. Thereby, the objective of this research was to improve At 362 rice variety by developing genotypes with white colour pericarp and longer grain shape, together with other preferred quality characteristics using tissue culture mediated mutation induction on seed calli. Dry rice seeds were de-hulled and surface sterilized. They were cultured in MS medium supplemented with calli induction hormones. Chemical mutagenesis was induced by Ethyl methanesulfonate (EMS). Initiated calli were treated with 0.2% EMS for 3 minutes and plants were regenerated from EMS treated calli. Regenerated green plants were acclimatized and grown in pots. M1 generation were grown in the field and evaluated for genetic variations for pericarp colour, grain shape, age of maturity, plant height, panicle number and plant architecture. Selected plants were further advanced up to M6 generation and the line 16TC80, which fixed to the age group 3.5 months and was relatively better for the desired traits was further evaluated for yield, pest and diseases and the overall uniformity. The rice line 16TC80 showed white pericarp colour, earlier maturity, and greater performances in pest and disease resistance and traits for yield and grain quality attributes.

Country or International Organization

Sri Lanka

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