

P116

Changes of physicochemical properties of seed longevity from a cross between *japonica* and weed rice

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Abstract

In previously study, we evaluated seed germination for longevity derived from a cross between ‘Ilmi’ and ‘Dharial’, a weed rice collected in Bangladesh. The strong germination trait originated from ‘Dharial’ was incorporated into ‘Ilmi’, through backcross method. The germination ratio was evaluated after two years of room temperature storage conditions. A high germination ratio of 80.5% in donor plant of ‘Dharial’ and 77.3% in an introgression lines was observed based on the two years of storage while the recurrent *japonica* cultivars, ‘Ilmi’ was failed in germination. In this study, we investigate changes in physicochemical properties of ‘Ilmi’ and introgression lines (ILs) stored at room temperature. We analyzed germination rate, texture of cooked rice, toyo glossiness value, pasting properties, amylose content, protein content and α -amylase content of ‘Ilmi’ and 5 introgressions every 4 months on the room temperature condition. Seed germinations were decreased by storage periods. Three ILs germination rate was slowly decreased more than ‘Ilmi’ and 2 another ILs after 4 months. Toyo glossiness value of ‘Ilmi’ and three ILs were no difference, but, 2 ILs gradually decreased every 4 months at storage periods. Pasting properties were affected by storage temperatures and periods of ‘Ilmi’ and ILs. The increase at breakdown was observed but setback was decreased by storage periods. Amylose content and protein content were no significant difference at storage periods, respectively. The α -amylase content was gradually increased during the storage periods. The introgression line could be useful to increase longevity and maintain quality during storage of *japonica* rice seed.

Keywords: Rice, Longevity, Germination, Weed rice, Introgression lines

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