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Complete Submergence tolerance of some traditional rice cultivars at seedling stage

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Submergence tolerance is an important trait where short term flash flooding damages rice. Due to the heterogeneity in flood-prone ecosystem, many different types of traditional rice cultivars are grown by the farmers. Present study was conducted to explore the submergence tolerance traditional rice cultivars in traditional rice collections in Sri Lanka. Twenty Sri Lankan traditional rice cultivars were screened for complete submergence tolerance at two week old seedling stage. Experiment was carried out according to the randomized complete block design with 4 replicates and 20 plants were included into each replicate. After the complete submergence stress, desubmerged plants were allowed to recover for 14 days at normal growth conditions. Data were collected on the number of survival plants, plant height before and after the submergence stress and plant height after the two week recovery period. Control experiment was also carried out parallel to treatment. Among tested rice cultivars 45% rice cultivars elongated during complete submergence period while 55 % of rice cultivars reduced their height compared to that of control plants during 14 day submerged period. Among evaluated 20 traditional rice cultivars, all the cultivars died after two week recovery period followed by 14 day completely submergence stress except rice cultivar *Sudu Wee*. It also recorded 51% survival rate. *Sudu Goda Wee* and *Dik Wee 328* recorded the highest gained plant height during submerged period. Only *Sudu Wee* which elongated (5.45 cm) during submergence stress was able to survive at submerged conditions at seedling stage. There was no significant correlation ($r = 0.16$, $\alpha=0.5$) between height gain during 14 day submergence stress and survival percentage of rice cultivars at seedling stage.

Key words: Seedling stage, submergence tolerance, traditional rice cultivars

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