Effect of Acidity on Seed Germination of Selected Varieties of Paddy

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Emissions caused by burning of fossil fuels have tremendously increased acid deposition on earth in the form of sulphuric and nitric acids along with rain, fog, mist and snow badly affecting agricultural harvests. Although similar conditions have not been reported from Sri Lanka its occurrence could be anticipated with increasing rate of urbanization and changes in the climate. In this research we hypothesized that exposure to ‘acid rain’ could affect seed germination of direct seeded paddy, impacting on rice production, the staple food of Asian communities. We recorded final germination percentage of 03 traditional (Ranthawalu (RT), Herathbanda (HB), Suwadel (SD) and 03 improved paddy (Oriza sativa) varieties (BW -367, BW – 372, BW - 272-bb) in an acidic medium (pH 2 to pH4) prepared using sulphuric acid and distilled water. The control had distilled water. The experiment was conducted using petri plates lined with filter paper using 25 replicates each containing 100 seeds for each variety. The Analysis of Variance (ANOVA) at $P<0.05$ revealed that seed germination of traditional RT, and improved varieties were affected when they were exposed to an acidic medium while the traditional varieties HB and SD did not. Hence it can be concluded that seeds of traditional rice varieties HB and SD possess the capacity to strengthen food security in Sri Lanka under potential conditions of ‘acid rain’ in the future.

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