Effects of Pre-soaking Treatment on Seedling Emergence and Harvesting Time of Eight Selected Microgreens

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Microgreens are immature edible seedlings of vegetables and herbs that are rich in bioactive compounds. Seedling emergence being low and slow in microgreen cultivation leads to economic losses. The study was conducted to evaluate the ability of pre-soaking treatments to enhance seedling emergence and reduce the harvesting time of eight selected microgreen species. Four replicates with 100 seeds from each species were imbibed in distilled water for 0, 3, 6, 9, 12 h at ≈25 ^{0}C under ambient conditions. Pre-soaked seeds were dispersed in plastic trays filled with coir dust and compost (50:50) and kept in a plant house at ≈27 ^{0}C under ambient conditions. Time for 50% seedling emergence (E_{50}) and time taken to reach harvesting height was recorded. One-way ANOVA using Fisher's LSD test was used to analyze the data. The following best pre-soaking treatments for each species were selected considering both E50 value and seedling emergence percentage; beet (6 h), carrot (9 h), fenugreek (3 h), green pea (12 h), green gram (6 h), radish (9 h), lettuce (6 h) and mustard (9 h). Those selected treatments significantlyimproved seedling emergence of beet (30%), carrot (45%), green pea (19%), radish (17%), lettuce (34%) and mustard (17%) ($P< 0.05$). Except for carrot, other species showed a significant reduction in their harvesting time period by one to two days. Therefore, pre-soaking can be used to improve seedling emergence percentage and rate and hence, reduce the time taken to harvest in the tested species.

Keywords: Microgreens, pre-soaking, harvesting period