

SEEDLING VIGOR ASSESSMENT OF ULTRA-DRIED LETTUCE (*LACTUCA SATIVA* L.) SEEDS

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Abstract

Seed conservation through establishment of seed genebanks is an important undertaking to ensure preservation of plant biodiversity. Effective conservation of these seeds depend on the storage temperature and seed moisture content. Maintaining seed genebanks is expensive especially in other parts of the world where the cost of cold storage is prohibitive. Because of this, that the ultra-dry technology was proposed as an alternative method of conserving seeds of germplasm. Before this technology can be adopted, its effect on the vigor of seedlings must be evaluated, hence this study was conducted. The main objective of the study is to determine the effect of low seed moisture content on germination and vigor of seeds. Seeds of lettuce cv. Tango were dried at varying time using two drying methods. The first method was rapid drying of seeds done on PVC tube with computer fan and the tube placed inside a glass desiccator with activated desiccant and drying of seeds was done at 4, 6,8 and 10 d. The second drying method was done by drying of seeds over activated desiccant for 30 d and seeds sampled every 5 d. Seed moisture content (MC) and germination were done following the standard protocol and the seedling vigor was assessed using the OSU Seedling Vigor Imaging System (SVIS). Rapid drying the seeds decreased the seed moisture content from 6% to 0.93% in 4 d. Drying the seeds for 10 d resulted to 0.32% MC. However, the germination was only slightly affected with the decrease in seed MC. Seed germination at 6% MC was 100% and when dried to 0.32% MC the germination decreased to 97%. In the second drying method, seeds took longer time to decrease. Drying the seeds for 5 d decreased the seed MC from 6% to 2% and further drying for 30 d resulted in 0.8% MC and germination only decreased from 100% to 98%. The results showed that germinability of seeds was only slightly affected by extreme reduction in seed MC. This study demonstrated that lettuce could withstand extreme desiccation without affecting their viability.