

Analysis of Biochemical and physiological changes during ultra-dessication in Radish (*Raphanus Stivus*)

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Abstract

This research aimed to determine whether ultra-dry storage improves the longevity of radish. Currently seed germplasm is dried to 3–7% moisture content (mc) before storage at subzero temperatures. In the present study, seeds were dried to different low moisture contents and stored under various conditions, to identify any increase in seed longevity. Seeds were dried to 2–3.4% in radish (*Raphanus sativus*). Seed conditioned to various mc's were sealed hermetically and stored at temperatures of -20°C, 10°C and ambient for 14 years. Seed germination and vigour was assessed at yearly intervals. Moisture content of radish (*Raphanus sativus*) seeds was dried to 10%, 7.7%, 6.3%, 4.2% and 3.4% (w.b.) in a desiccating container with silica gel, and stored at 45°C, 25°C and 15°C for 24 months. The data from 24 months showed that the optimum moisture content for storage varies with temperature. After ultra drying some physiological indices were tested. The results indicated that Dehydrogenase, lipid peroxidation, electrical conductivity higher than those of the control seeds. The results indicate that moisture content of seed was a key index for storage at ambient temperature (25°C) and 3.81% seem to be the best moisture content for ultra-dry seeds in our research. RAPD markers were also used to evaluate the genetic fidelity of seeds, all RAPD profiles from ultra-dry seeds were monomorphic and similar to non-ultra-dry seeds, we conclude that variation is almost absent in ultra-dry storage. From these results, we suggest that seed moisture content less than 5% enhances longevity and ultra-dry could be an economical way for conservation of the plant genetic-resource..

Biography:

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