

Title Influence of storage conditions on seed quality and longevity of four vegetable crops

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Abstract

Seeds of four vegetable crops; carrot (*Daucus carota* L. cv Nantes 2-Tito), cucumber (*Cucumis sativus* L. cv Special), onion (*Allium cepa* L. cv Red Creole) and tomato (*Lycopersicon esculentum* Mill. cv Tanshet Star) were stored under a wide range of temperature (5, 15, 25 and 35°C) and relative humidity (RH) (11.3, 22.5, 32.5, 43.2, 58.4, 75.3, and 84.3 %) conditions for various storage periods (1, 3, 6, 9, and 12 months) respectively. The quality of stored seeds was tested by measuring seed germination percentage (SGP), mean germination time (MGT) and germination coefficient of velocity (GCV). Significant differences were found in (SGP), (MGT) and (GCV) in response to storage temperature, RH and among crops. Seeds stored at 5°C had the highest SGP and GCV but had the shortest MGT. However, seeds stored at 35°C had the lowest SGP and GCV and the longest MGT. RH up to 58.4% had no significant effect on SGP while higher levels of RH significantly lowered SGP and MGT. The highest RH levels (75 and 84%) showed an obvious decrease in seed quality by lowering SGP and increasing MGT. Tomato and cucumber SGP were significantly higher than that of onion and carrot seeds. Cucumber seeds had significantly the shortest MGT and highest GCV while carrot seeds had the longest MGT and lowest GCV than the other vegetable crops. These results emphasize the importance of storage temperature, relative humidity, choice of seed crop, and storage period on the quality and germplasm conservation of vegetable seeds.