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Prediction of Soybean Seed Viability and Quality in Relation to Seed Moisture Content and Storage Temperature

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Abstract

This experiment was designed to predict viability and quality changes of stored soybean seeds (*Glycine Max* (L.) Merill) of the cultivar CM60 which stored at various conditions. The treatment was; four seed moisture contents 6, 8, 10 and 12 percent and five storage temperatures of 15, 20, 25, 30° Celsius and room temperature. Seeds were stored for 120 days and seed quality assessment was done every 2 weeks. Standard germination test, electrical conductivity test, seedling growth rate, viability test by tetrazolium test and vigor test by accelerate aging technique were determined and investigated. After 8 weeks storage, the percent of germination in all moisture level still remained above 70 percent and storage temperature at 15° Celsius rate of germination decreased. Moreover, electrical conductivity values of all conditions were increased more than 100 micromole/g seed, but seedling growth rate decreased after storage. Viability test by tetrazolium technique was higher than 80 % in all moisture content levels excepted at 12 percent where the value is lower than 75 %. The relative ease which the conductivity test can be done as vigor testing, the quantity of solute leaked showing a negative correlation with viability in seed sample. In addition, seed moisture content at 6 and 8 percent tested vigour by accelerated aging technique, showed only 70 percent of germination. The storage, at high seed moisture content and in high temperature affected seed vigor that decreased continually . Thus, this experiment provided the results on quality of seed, which showed relation between seed moisture content and storage temperature. They are possible to be used to predict viability and quality of soybean seeds storability.

Keywords: Prediction, seed vigour test, viability test, storage

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