

Aging-Related Changes of Inorganic Compound Leaching and Carbohydrates in *Pyracantha angustifolia* Seeds¹

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ABSTRACT

Changes of germination percentage, inorganic compound leaching, and carbohydrates were measured in *Pyracantha angustifolia* seeds throughout accelerated aging under 35°C and 75% relative humidity (RH) to investigate whether these indicators can be used as a rapid vigor test. The decrease in seed germination was accompanied as increasing by Na⁺ and Ca²⁺ leakage content during artificial aging. However, the leachate electrical conductivity test and potassium and magnesium ion tests had no relation with seed germination. The ratios of inorganic ions from accelerated aged seeds show that K⁺/Ca²⁺, K⁺/Na⁺, Mg²⁺/Ca²⁺, and Mg²⁺/Na⁺ were inversely correlated with germination and their correlation values were -0.75, -0.83, -0.79, and -0.79, respectively. Change in carbohydrates indicates that glucose concentration in aged seeds was associated with a decrease in seed vigor, whereas the changes of sucrose and starch concentration did not show any correlation. In conclusion, the results show that, K⁺/Na⁺, K⁺/Ca²⁺, Mg²⁺/Ca²⁺, and Mg²⁺/Na⁺ ratios and glucose concentration changes were highly correlated with seed vigor, thus, these changes could provide more sensitive and accurate index for the assessment of *P. angustifolia* seed vigor.

Keywords : *Electrical conductivity, Glucose, K⁺/Na⁺ ratio, Seed storage, Seed accelerated aging, Viability*

¹ Received on April 7, 2009

Accepted on September 18, 2010

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