

Storage of West African yam (*Dioscorea* spp.) seeds: modelling seed survival under controlled storage environments

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Abstract

Survival data was collected from seeds of two yam species, *D. dumetorum* and *D. togoensis* stored at moisture contents ranging from 3% to 25% under temperatures ranging from 5°C to 55°C for 400 days (13 months). The data was subjected to probit analysis to estimate seed longevity under each of the seed storage treatment combinations. The relationship between seed longevity and storage environment was evaluated by a seed viability equation whose constants were determined by linear regression modelling. Seed viability constants estimated for *D. dumetorum* were $KE = 5.859$, $CW = -3.060$, $CH = -0.0007$, $CQ = -0.0007$ and for *D. togoensis* were $KE = 4.505$, $CW = -1.646$, $CH = -0.020$, $CQ = -0.00011$. R-values of the data fit to the equation were approximately 0.92 for *D. dumetorum* seeds and 0.87 for *D. togoensis* seeds. The estimated constants are recommended for monitoring the viability of seed lots of the species in gene banks operating controlled storage facilities within the range of the experimental storage conditions.