

**Title :** The relationship between seed moisture content and equilibrium relative humidity in three Fagaceae species: Implications for seed bank management

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## ABSTRACT

In the nursery propagation of trees, the seeds of certain species lose their viability when seed moisture content decreases. Therefore, determining the seed moisture content helps in seed management. This study aims to examine the relationship between equilibrium relative humidity (eRH) and seed moisture content in three species of the *Fagaceae* family found in Doi Suthep-Pui National Park. The studied species are *Castanopsis tribuloides*, *Quercus rex* and *Castanopsis diversifolia*. The measurement of eRH was conducted by placing the seeds in a sealed flask for 30 minutes at a controlled temperature of 25°C, and readings were taken using a hygrometer. The seed moisture content was determined by comparing the fresh weight and dry weight after drying the seeds at 103°C for 17 hours. The seed moisture content was 34% for *Castanopsis tribuloides*, 35% for *Quercus rex* and 23% for *Castanopsis diversifolia*. The correlation between eRH and seed moisture content was 0.94 for *Castanopsis tribuloides*, 0.63 for *Quercus rex*, and 0.63 for *Castanopsis diversifolia*. A regression analysis indicated that two tree species, *Castanopsis tribuloides* and *Quercus rex*, exhibited a statistically significant linear relationship between eRH and seed moisture content. The results suggest that for certain tree species, measuring eRH can be an indicator of seed moisture content. Therefore, seed management planning should involve experimentation and the development of species-specific methods to optimize seed storage and germination processes.