Title : Relationship between equilibrium relative humidity (eRH) and seed moisture

content in three orthodox seed species: Guidelines for seed bank storage

towards forest conservation

Author(s) :   1.   Suchatida Sopathammarat   Student ID :   640510299

Major :   Biology

Advisor(s) :   1.   Assistant Professor Dr.   Pimonrat Tiantsawat

Type of presentation* *(choose 1)* :   ☐   Oral Presentation   (เฉพาะ ตัวแทนนศ.ที่สาขาเลือกให้นำเสนอแบบบรรยาย)

☑   Poster   (กรณี นำเสนอผลงานปัญหาพิเศษ/การค้นคว้าอิสระ)

☐   Cooperative Education   (กรณี นำเสนอผลงานสหกิจศึกษา)

ABSTRACT

The preservation of seeds in a dry state within seed banks is a crucial strategy for preventing plant extinction. To store seeds effectively, it is essential to control their moisture content, as they will be frozen at a temperature of -20°C. Therefore, determining the moisture content of seeds is a critical step in planning for seed storage. This study aims to analyze the relationship between equilibrium relative humidity and seed moisture content in three tree species: *Turpinia pomifera*, *Antidesma ghaesembilla Gaertn*, and *Rhus rhetssoides*. The methodology involves determining seed moisture content using the drying method and measuring the equilibrium relative humidity of seed storage containers at 25°C. The humidity is then gradually reduced to 15% or lower, which is the optimal level for seed storage in seed banks. The initial seed moisture content was 77% for *Turpinia pomifera*, 77% for *Antidesma ghaesembilla*, and 62.5% for *Rhus rhetssoides*. A correlation test between seed moisture content and equilibrium relative humidity revealed correlation values of 0.90 for *Turpinia pomifera*, 0.96 for *Antidesma ghaesembilla*, and 0.72 for *Rhus rhetssoides*. Linear regression analysis showed a significant linear relationship ($p < 0.05$) for *Turpinia pomifera* and *Antidesma ghaesembilla*, but no significant linear relationship for *Rhus rhetssoides*. These findings indicate that the relationship between seed moisture content and equilibrium relative humidity varies among tree species. In species where a linear correlation is observed, equilibrium relative

humidity can be used to predict seed moisture content, allowing for more efficient moisture reduction planning.