

Sajee Chaodumrikul 2013: Breaking Seed Dormancy in Smooth Loofah (*Luffa cylindrica* (L.) M. Roem.) by Scarification and Dry Heat. Master of Science (Horticulture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Miss Pichitra Kaewsorn , Ph.D. 73 pages.

A study on breaking dormancy in smooth loofah (*Luffa cylindrica* (L.) M. Roem.) seed using scarifier and dry heat that possible for commercial seed production. There were 2 experiments, i.e. 1) study on the methods of breaking dormancy: clipping, scarified seed by scarifier at 40 70 and 100 rpm for 1 minute and dry heat at 60 70 and 80 °C for 1 to 8 hours and 2) study on the structure of seed coat under digital microscope. Three lots of loofah seeds used in this study (lot number 1, lot number 2 and lot number 3) had 100% viability, germination was 56.0 6.0 and 42.5% and hard seed 35.5 91.0 and 45.5%, respectively. The results showed that clipped seeds of all lots gave the highest germination (100%). Scarified seed using scarifier at 100 rpm for 1 minute of lot 1 and 3 had the germination of 75.5-95.5% higher than seeds scarified by other speed. However, for seed lot 2 had germination only 24%. The results of breaking dormancy by dry heat treatment, it was found that dry heat at 60 °C for 3-5 hours and dry heat treatment at 70 °C for 2-5 hours of seed lot number 1 had the germination of 71.0-80.5%. Dry heat treatment at 70 °C for 4-5 hours of seed lot number 3 had the germination of 71.0-73.5%. However, dry heat of both temperatures could not break dormancy for seed lot number 2 as the germination was only 11.0-34.5%. For the study of seed coat structure, it was showed that the outer layer of seed coats of all 3 seed lots scarified at 100 rpm for 1 minute were thinner than those of un-scarified seed. Dry heat had no effect on seed coat thickness, but affected cells of inner seed coat as the sclerenchyma cell showed disordered characteristic, non-uniform and seemed to be torn off. It can be concluded that scarified seed using scarifier and breaking seed dormancy by dry heat could not be effectively implemented for breaking seed dormancy in commercial seed production.

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Thesis Advisor's signature