

The Application of Image Analyzer to Study the Effects of Pericarp in the Imbibition Process of *Melia dubia* Seeds

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Abstract : An image analyzer system is described to study the process of imbibition in *Melia dubia* seeds. The experimental system consisted of control C (seeds with intact pericarp) with two treatments, namely T1 (seeds with pericarp punctured) and T2 (naked seeds without pericarp). The measurement software in the image analyzer can determine the area and perimeter as descriptors of changes in seed size during swelling resulting from imbibition. Using the area and perimeter parameter, the imbibition process in C, T1, and T2 was described by a series of curves similar to the triphasic pattern of water uptake, with the extent and rate depending upon the treatment. Naked seeds without pericarp (T2) took lesser time to reach phase III during imbibition followed by seeds with pericarp punctured (T1) while the seeds with intact pericarp (C) were the slowest to attain phase III. This shows the effect of pericarp in acting as a potential inhibitor to imbibition inducing a large delay in germination. The sensitivity and feasibility of the method to investigate individual seeds within a population imply that the image analyzer has high potential in seed biology studies.

Keywords : germination, imbibition, image analyzer, *Melia dubia*, pericarp

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