

Aim 15

To estimate the Relative Water Content and Saturation Deficit of the given Plant Material

Requirements

Distilled water, filter paper, hot air oven, weighing machine, Petri plates, leaves, cork borer.

Procedure

1. Leaves of the plant are taken and washed properly.
2. Use filter paper for drying the leaves.
3. 40 leaf discs are taken out by using cork borer or sharp blade.
4. Note down the weight of 40 leaf discs and termed it as original weight (w_1).
5. Keep the leaf discs in water in such a way that, the ventral side of leaf faces the bottom of the petri plate while dorsal side faces the observer.
6. Leave the petri plates undisturbed for 1 hour. During this period, water enters the leaf discs via endosmosis.
7. The discs are taken out and placed in the folds of filter paper to dry the excess of water on the surface of discs.
8. Note down the weight after saturation and termed this as saturated weight (w_2).
9. Place discs in the hot air oven at 80°C for 1 hour and then weigh it. The measured weight is called as oven dried weight (w_3).

Calculations

Saturation deficit percentage = $\{(w_2 - w_1)/(w_2 - w_3)\} \times 100$

Relative water content = $\{(w_1 - w_3)/(w_2 - w_3)\} \times 100$

Where, w_1 = initial weight

w_2 = saturation weight

w_3 = oven dried weight

Precautions

1. Leaf discs must float in water such a way that, the ventral side of leaf faces the bottom.
2. All weights should be measured properly and accurately.
3. Saturation weight should be taken after drying discs in filter paper.