

Ex. No. 1: Determination of Stomatal Index.

Introduction: Stomatal index is the measurement of the surface density of stomata. This parameter has been found useful in comparing leaves of different mulberry varieties as it plays very important role in photosynthesis and transpiration.

Aim: To determine stomatal index of the given mulberry variety.

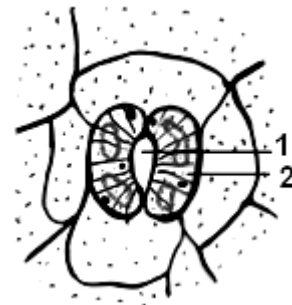
Procedure: Select a matured mulberry leaf. Apply a thin layer of either gum or nail polish to the lower surface of the leaf and leave it for 10 min for drying. After complete drying peel the gum or nail polish layer carefully with the help of forceps without damaging the layer. Mount the peeled layer with a drop of diluted safranin and a drop of glycerin on a clean glass slide using cover glass and observe under a microscope.

Stomatal Index: Number of stomata present in a unit area of the leaf (may be as seen under microscope field or may be calculated using micrometers) in percentage. Count the number of stomata as well as number of epidermal cells in a given unit area and calculate the stomatal index using the following formula.

$$\text{Stomatal Index (\%)} = \frac{\text{Stomatal density} \times 100}{\text{Stomatal density} + \text{epidermal cell density}}.$$



Epidermal cells and stomata under microscope;



Stomata – Magnified

1: Stomatal pore; 2: Guard cell

Report: The stomatal index of the given mulberry variety is ----- %.
