



## Terminologies

*Includes the definitions of various terms and parameters associated with the plant growth, physiology, and pathogen defense-related that are mentioned in this SCIP-database.*

1. **Transpiration rate-** Is the amount of water transpired by plant per unit leaf area per unit time.
2. **Electrolyte/Membrane leakage-** Solute leaked from cytosol due to membrane damage. Quantification of this reflects the extent of damage to the membrane.
3. **Electron transport rate (ETR)-** Is a light-adapted parameter which directly related to an amount of energy used in photochemistry by photosystem II under steady-state photosynthetic lighting conditions.
4. **Ci content-** Is the intercellular carbon dioxide concentration.
5. **Relative water content (RWC)-** Is the actual water content of the sampled leaf tissue in relation to the maximal water content it can hold at full turgidity.
6. **Stomatal conductance (gs)-** Is a measure of the rate of CO<sub>2</sub> taken in or water transpired through stomata.
7. **Water use efficiency (WUE)-** Amount of water transpired to produce a gram of biomass.
8. **Mesophyll conductance (gm)-** Is the transfer of carbon dioxide from a sub-stomatal cavity/intercellular airspace of the leaf into the chloroplast.
9. **Water potential ( $\Psi_w$ )-** A measure of the free energy associated with water per unit volume.
10. **Hydraulic conductivity-** Is a property of vascular plants, soils, and rocks that, describes the ease with which a fluid (usual water) can move through pore spaces or fractures.
11. **Embolism-** When the tension in the xylem conduits becomes too high, xylem cavitation will occur (water column breakage). This results in the hydraulic disconnection of leaves and above-ground parts from roots because xylem conduits are filled with air and water vapor, and this phenomenon is called embolism.
12. **Isotope discrimination-** The uptake by plants of a particular isotope in preference to another isotope of the same element. E.g. Plants prefer <sup>12</sup>C (lighter-fast diffusive) over <sup>13</sup>C (heavier-slow diffusive).



13. **Wilt index**- Is the percentage of wilted leaves to that of non-wilted leaves in a plant.
14. **Photosynthetic rate/ Assimilation rate (A)**- Is the amount photosynthetic products (glucose) produced per unit time.
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16. **Isotope discrimination**- The uptake by plants of a particular isotope in preference to another isotope of the same element. E.g. Plants prefer  $^{12}\text{C}$  (lighter-fast diffusive) over  $^{13}\text{C}$  (heavier-slow diffusive).

$$\Delta = \frac{R_{\text{air}}}{R_{\text{p}} - 1}$$

where  $R_{\text{air}}$  and  $R_{\text{p}}$  stand for the  $^{13}\text{C}/^{12}\text{C}$  ratio in air and the photosynthetic product, respectively.

17. **de-wit Replacement series**- This method is used for examining the competitive interaction between the plant pathogen by calculating the relative yield of the fungus. The relative yield (RYT) of fungus is the ratio of sporocarp yield in the combined treatment to its sporocarp yield in the single treatment. This calculated relative yield was plotted against the proportion of that fungus used in the combination treatment. The RY of each pathogen when present alone (100%) was equal to 1.0, and the other RYs were calculated with reference to this; at each input proportion, the sum of the RY gave the RYT. The relationship between the inoculation ratio of both the pathogen and relative yields was compared statistically to a hypothetically noncompetition model. The shape of the RYT line reflects the interaction between the two pathogens in the mixture.
18. **TBARS assay**- Thiobarbituric acid reactive substances (TBARS) are formed as a byproduct of lipid peroxidation (i.e. malondialdehyde) which can be detected by the TBARS assay using thiobarbituric acid as a reagent. It is an indirect measure of oxidative stress damage.
19. **The plastochron index (PI)**: Is a measurement of the developmental age of a plant which is independent of biomass parameters



**References:**



# Stress Combination and their Interaction in Plants (SCIP) Database

Website link- <http://www.nipgr.ac.in/SCIPdb.php>

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