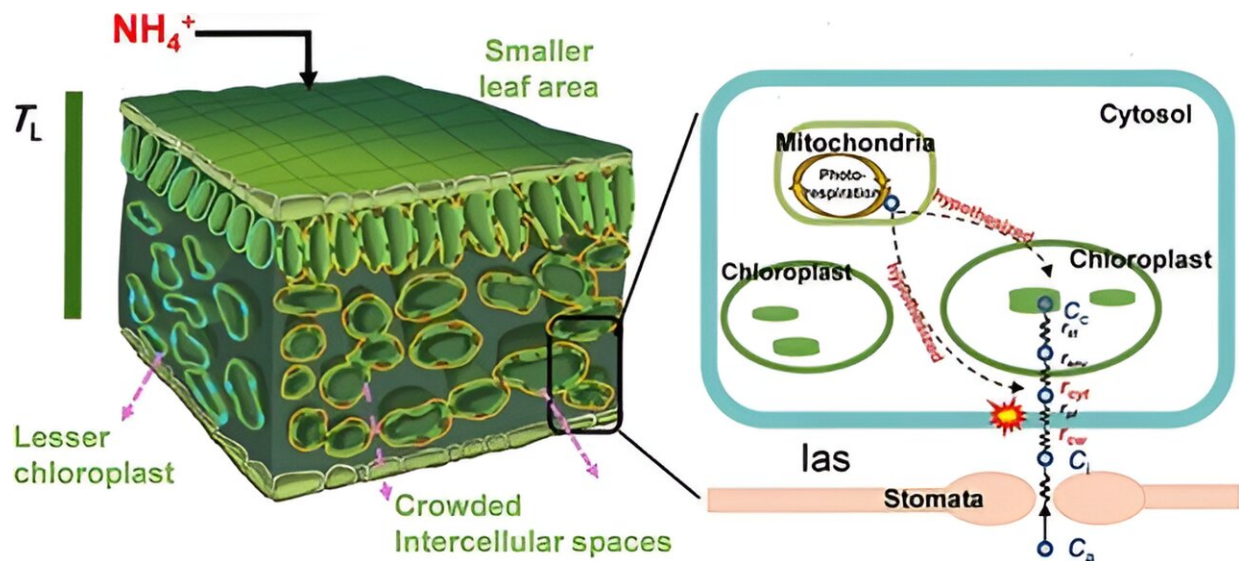


# From roots to leaves: The nitrogen connection to photosynthetic efficiency

July 18 2024



Schematic diagram of *Lonicera japonica* leaf anatomical traits (left side) and  $\text{CO}_2$  diffusion pathway under  $\text{NH}_4^+$  alone supply (right side). In the left side,  $\text{Sc}/\text{S}$  was outlined with red lines and  $\text{Smes}/\text{S}$  was marked with yellow lines. The accurate  $\text{Sc}/\text{S}$  estimations overlapped  $\text{Smes}/\text{S}$  lines, whereas they are displayed independently here for clarity. Chloroplasts were highlighted with blue. Decreased chloroplast numbers resulted in the reductions in  $\text{Sc}/\text{S}$ . The intercellular spaces were pointed out with pink discontinuous lines. The tight arrangement of mesophyll cells under sole  $\text{NH}_4^+$  supplies led to increased intercellular spaces, which exacerbated the reductions in  $\text{Sc}/\text{S}$  and  $\text{Smes}/\text{S}$ . In the right side, the black folded lines represent the strength of  $\text{CO}_2$  diffusion resistance into the cell from cell wall ( $r_{\text{cw}}$ ), plasma ( $r_{\text{pl}}$ ), cytoplasm ( $r_{\text{cyt}}$ ), envelope ( $r_{\text{env}}$ ), and stroma ( $r_{\text{st}}$ ), while the  $r_{\text{cw}}$  and  $r_{\text{cyt}}$  which are marked with red indicated the values of this component differed among the treatments (P

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