

研究简报

绿斑病藻寄生对夏橙叶片光合作用特性的影响

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摘要 以盆栽的2年生奥灵达夏橙为试材, 研究了绿斑病藻寄生对夏橙叶片光合作用特性的影响. 结果表明, 轻度病叶对叶绿素总量 (Chl a+b)、类胡萝卜素含量 (Car)、净光合速率 (P_n)、胞间CO₂浓度 (C_i)、原初光能转换效率 (F_v/F_m)、光合电子传递量子效率 ($\Phi_{PS II}$) 和光化学猝灭系数 (qP) 无显著影响; 中度病叶和重度病叶的Chl a+b、Car、 P_n 、 F_v/F_m 、 $\Phi_{PS II}$ 和 qP 较对照分别下降了23.85%、26.49%、43.3%、4.5%、35.1%、22.5%和37.61%、44.04%、64.5%、8.6%、63.6%、40.1%, 与对照差异显著, 而 C_i 较对照显著上升. 绿斑病藻的大量寄生减弱了夏橙叶片的光合作用, 而净光合速率的下降主要是由非气孔因素限制引起.

关键词 [奥灵达夏橙](#) [虚幻球藻](#) [光合色素](#) [光合作用](#) [叶绿素荧光](#)

分类号

Effects of *Apatococcus lobatus* parasitization on leaf photosynthesis characteristics of orange (*Citrus cv. Olinda*)

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Abstract
With 2-year pot-grown grafted *Citrus cv. Olinda* as test material, this paper studied the effects of *Apatococcus lobatus* parasitization on its leaf photosynthesis characteristics. No significant differences were observed between slightly affected and control leaves in their total chlorophyll (Chl a+b) and carotenoid (Car) contents, net photosynthetic rate (P_n), intercellular CO₂ concentration (C_i), primary maximum photochemical efficiency of PS II (F_v/F_m), quantum efficiency of noncyclic electron transport of PS II ($\Phi_{PS II}$), and photochemical quenching (qP), but for medium and severely affected leaves, their Chl a+b, Car, P_n , F_v/F_m , $\Phi_{PS II}$ and qP decreased by 23.85%, 26.49%, 43.3%, 4.5%, 35.1% and 22.5%, and 37.61%, 44.04%, 64.5%, 8.6%, 63.6% and 40.1%, respectively, while C_i increased, with significant differences to the control. It could be concluded that the massive parasitization of *A. lobatus* caused a stress to orange plant, and non-stomatal limitation was the dominating factor of P_n reduction.

Key words [Citrus cv. Olinda](#) [Apatococcus lobatus](#) [Photosynthetic pigment](#) [Photosynthesis](#) [Chlorophyll fluorescence parameters](#)

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