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研究论文

扬麦5号旗叶光合功能衰退进程中光温逆境下PSⅠ特性的变化

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摘要 本文比较研究了高温强光逆境对扬麦5号小麦旗叶光合功能衰退进程中光合膜PSI组分 及电子传递活性的影响。 在光合功能的高值持续期， PS Ⅰ颗粒电子传递活 性较 高， 多肽组分相对稳定； 进入光合功能速降期后电子传递活性快速下降， PS Ⅰ颗粒的 LHC Ⅰ和作用中心组分均发生不同程度降解。 在光合功能的高值持续期， 高温胁迫能 加剧光逆境条件下 PS Ⅰ活性下降程度和LHC Ⅰ等多肽组分损 伤， 而在光合功能衰退的速 降期， PS Ⅰ颗粒对光温敏感的多肽组分已基本降解， 适应及抵御光温逆境 胁迫的能力明显减弱。

关键词 光温逆境 扬麦5号 光合功能衰退进程 PS Ⅰ颗 粒 多肽组分 电子传递活性

分类号

Changes in Characteristics of PS Ⅰ from Flag Leaves of Yangmai No. 5 (T riticum aesti v um L.) under Light-temperature Stress during Photo-synt hetic Functional Decline Process

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Abstract After full expansion of flag leaf, the photosynthetic functional dec line process was divided into active photosynt hetic duration and sharp fall phas e. During the active photosynthetic duration,the PS Ⅰ particles ma intained high er elec tron transport activities. The polypeptide components of PS Ⅰ particles remained relative steady. During the sharp fall phase, there was a rapid decreas e in electron transport activities of PS Ⅰ particles. LHC Ⅰ and small molecula r polyp eptide of PS Ⅰ particles were degraded. The strong light-i nduced inactiv ation of PS Ⅰ electron transport at 37℃ was faster than that at 25℃, and the degradations of LHC Ⅰ and other polypeptide of PS Ⅰ particles were aggravated in ac tive photosynthetic duration. However during the sharp fall phase,the PS[KG— 4〗 Ⅰ particles polypeptide componen ts which were sensitive to light-temperature str e ss had been basically degraded,the adaptation and resistant capacity to lig ht-t emperature stress was remarkably declined.

Key words Light-temperature stress Yangmai No.5(Triticum aestivum L.) Photosynthe -tic f unctio nal decline process PS Ⅰ particles Polypeptide component Electron transport activity

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