

研究论文

# 超高产杂交稻剑叶的光抑制及其77K荧光光谱特性

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**摘要** 通过对培矮64S/E32和汕优63进行高光胁迫结果表明: 与籼型杂交稻汕优63比较, 培矮64S/E32的Fv/Fm和ΦPS II、PS II 和PS I 荧光强度下降的幅度以及F685/F742和F694/F742比率的变化较小。用D1蛋白合成抑制剂CAP处理时, 培矮64S/E32 的Fv/Fm和qP下降程度稍高于汕优63, 而用叶黄素循环抑制剂DTT处理, 结果则反之。表明超高产水稻品种培矮64S/E32有较强的耐光抑制能力, 其耐光抑制特性可能与D1蛋白的周转有关。

**关键词** [超高产杂交稻](#) [光抑制](#) [77K荧光光谱](#) [D1蛋白周转](#)

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## Photoinhibition and 77K Fluorescence Spectra in the Flag Leaves of Super-high Hybrid Rice (*Oryza sativa* L.)

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**Abstract** The sensitivity to photoinhibition and its mechanism were compared between super high-yield rice Peiai64S/E32 and indica hybrid Shanyou 63. After strong light treatment, the maximal photochemical efficiency of PS II (Fv/Fm), the quantum efficiency of PS II (ΦPS II) decreased less in Peiai64S/E32 than in Shanyou 63. High light stress treatment lead to the intensities of fluorescence emission from PS II and PS I, and the ratios of F685/F742 and F694/F742 decreased much in Shanyou 63, but had no effect on the position of chlorophyll fluorescence emission peak in the two hybrids rice subspecies. The decreased extent of Fv/Fm and qP was more significant in CAP-pretreated leaves of Pei' ai 64S/E32 when the synthesis of D1 protein was inhibited, while the number was less in DTT-pretreated leaves when the xanthophylls cycle was inhibited. The results suggested that stronger resistance to photoinhibition in super high-yield rice might be related to its stronger D1 protein turnover.

**Key words** [Super high-yield rice](#) [Photoinhibition](#) [77K fluorescence spectra](#) [D1 protein turnover](#)

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