

研究论文

粳型光敏核不育水稻7001s的光温反应特性与花粉育性转换及其过程中花药蛋白质的变化

黄庆榴, 唐锡华, 茅剑蕾

中国科学院上海植物生理研究所, 上海, 200032

收稿日期 1992-7-23 修回日期 1993-1-27 网络版发布日期 接受日期

摘要 粳型光敏核不育水稻7001s在控制光长和温度条件下试验结果说明它对光周期反应强, 光周期反应日数为107天; 在长光照(14.5小时)雄性不育基因表达稳定, 植物在稻穗雌雄蕊原基分化前长光照对穗发育有不利作用, 但分化后对长光照反应不敏感。温度对7001s稻穗发育和小穗育性亦有一定的影响, 在20℃低温抽穗延迟, 但每穗总小穗数增加, 结实率降低; 30℃高温下每穗总小穗数及结实率均降低。播种在上海地区自然条件下的育性转换的抽穗期在9月上旬。在育性转换过程中可育的花药可溶性蛋白质含量高于不育的, 蛋白质组分亦有差异, 在SDS-PAGE图谱中显示出可育的花药比不育的花药多两条分子量约为43和40KD蛋白质谱带, 说明花药蛋白质含量和组分的变化与育性之间有一定的关系。

关键词 [光敏核不育水稻](#), [育性](#), [花药](#), [蛋白质](#)

分类号

Photoperiodic and Temperature Responses of a Japonic Photoperiod-sensitive Male-sterile Line 7001s and Their Effect on Fertility and Anther protein

Huang Qing-liu, Tang Xi-hua, Mao Jian-lei

Shanghai Institute of Plant Physiology, Academia Sinica, Shanghai, 200032

Abstract The photoperiodic and temperature responses of a photoperiod-sensitive japonica male-sterile line 7001s and their effect on the fertility and protein of the anthers were studied. The results indicated that 7001s is very sensitive to daylength. When put under long day (14.5hr.) environment, the growth period before heading was 107 days longer than that under short day, and the expression of sterility was stable. They also revealed that although the development of the panicle could be retarded by LD before the differentiation of the panicle, it became insensitive afterwards. The results also indicated that temperature could also influence the development of the panicle and fertility of the spikelet. 20℃ treatment could retard the heading date, but the number of spikelets increased and the seed setting rate decrease. When under 30℃, both the number of spikelets and seed setting rate decrease. Results of sowing date experiment under natural conditions in Shanghai indicated that the transition from sterile to fertile occurred with early September heading. During this transition, the soluble protein content of the fertile anthers is higher than that of the sterile one. There were also differences in the components of the protein. Thus, the SDS-PAGE pattern showed that the protein of the fertile anthers had 2 more bands, at 43KD and 40KD, than the sterile anthers, indicating that the content and components of the anther protein were somewhat related to their fertility.

Key words [Photoperiod-sensitive genic male-sterile rice](#) [Fertility](#) [Anther](#) [Protein](#)

DOI:

通讯作者 黄庆榴

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(965KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中包含“光敏核不育水稻,育性,花药,蛋白质”的相关文章](#)

▶ 本文作者相关文章

· [黄庆榴](#)

· [唐锡华](#)

· [茅剑蕾](#)