作物学报 2004 30 (8): 837-842 ISSN: 0496-3490 CN: 11-1809/S

研究论文

不同穗型超高产小麦旗叶CO2同化能力的比较

王之杰,郭天财,朱云集,王永华,王纪华,赵明

河南农业大学，国家小麦工程技术研究中心，河南郑州 450002

收稿日期 2003-4-17 修回日期 2003-11-1 网络版发布日期 接受日期

摘要 在超高产条件下，对多穗型小麦品种豫麦49和大穗型品种周麦13旗叶净光合速率（Pn）、RuBP羧化酶（RuBPcase）活性、羧化效率（CE）及Pn对CO2的响应进行了研究。结果表明，两品种旗叶一生Pn、RuBPcase活性变化趋势一致，各处理旗叶展开后Pn和RuBPcase活性逐渐上升，于展开后第10天达最大值，之后逐渐下降。两品种相比，旗叶展开的0～10 d内豫麦49各处理的Pn、RuBPcase活性、CE均高于周麦13，而第20天以后周麦13则高于豫麦49。豫麦49 CO2饱和点低于周麦13，而其CO2补偿点则高于周麦13。两品种B2处理（基本苗150×104 • hm-2）旗叶表现出明显的CO2同化优势。

关键词 小麦 超高产 CO2 同化能力

分类号 S512

Comparison of CO2 Assimilation Capacity in Flag Leaf for Super-high-yield Wheat with Different Spike Type

WANG Zhi-Jie,GUO Tian-Cai,ZHU Yun-Ji,WANG Yong-Hua,WANG Ji-Hua,ZHAO Ming

Henan Agricultural University, National Engineering Research Center for Wheat, Zhengzhou 450002, Henan

Abstract The responses of net photosynthesis rate (Pn), RuBPcase activity and carboxylation efficiency (CE) in flag leaf for two cultivars, Yumai 49, a small spike type, and Zhoumai 13, a large spike type, to CO2 concentration were studied in super-high-yield condition. The Pn and RuBPcase activity increased gradually in the initial 10 days and reached the maximum value at the 10th day, then declined gradually for both the cultivars after flag leaf fully expanded. Compared with Zhoumai 13, Yumai 49 had higher Pn, RuBPcase activity and CE in 0—10 days after flag leaf fully expanded, and vice versa after the 20th day. Yumai 49 had lower CO2 saturation point but higher CO2 compensation point than that of Zhoumai 13. We came to the conclusion that Zhoumai 13 had higher CO2 assimilation capacity than Yumai 49. The B2 treatment（base plant of 150×104 • hm-2）of the two cultivars had apparent advantages in CO2 assimilation capacity.

Key words Winter wheat; Super-high-yield; CO2; Assimilation capacity

DOI:

通讯作者 郭天财