

HOME

About Journal@archive

Journal List

Journal/
Society Search

GO

News



Science Links Japan

JST Japan Science and Technology Agency

Japanese journal of crop science

The Crop Science Society of Japan [Info](#) [Link](#)[TOP](#) > [Journal List](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN: 1349-0990

PRINT ISSN: 0011-1848

Japanese journal of crop science

Vol.64 , No.2(1995)pp.209-215

[\[Full-text PDF \(869K\) \]](#) [\[References \]](#)

Characteristics of Leaf Photosynthesis in Chinese F₁ Hybrid Rice Cultivar, Shanyou 63

Kenji HIRAO, Fumitake KUBOTA, Waichi AGATA and Xiang Fu SONG

- 1) Faculty of Agriculture, Kyushu University
- 2) Faculty of Agriculture, Kyushu University
- 3) Faculty of Agriculture, Kyushu University
- 4) China National Rice Research Institute

[Published: 1995/06/05]

[Released: 2008/02/14]

Abstract:

Leaf photosynthetic rate (PI) of Shanyou 63 (SLI), a Chinese F₁ hybrid cultivar with exceedingly high yield, was evaluated in comparison with those of two Japanese leading pure-line cultivars (JC), Nipponbare and Koshihikari. The three cultivars were grown in pots from early to pre-heading stage. Stomatal and mesophyll conductances, chlorophyll content, soluble protein content and ribulose 1, 5-bisphosphate carboxylase (RuBP-Case) activity were measured. The results obtained are as follows : 1) PI of SH was constantly higher than those of JC through the growth stage. Particularly at the early growth stage, the difference in PI between SH and JC was Large: SH and JC showed 26.98 and 21.15 $\mu\text{molm}^{-2}\text{s}^{-1}$, respectively. 2) The high PI of SH at the early growth stage depended on both high stomatal and mesophyll conductances, while at the pre-heading stage the high mesophyll conductance was the main cause of increasing PI. 3) Contents of chlorophyll and soluble protein of SH were significantly lower than those of JC, and there was no significant difference in RuBPCase activity between cultivars. 4) Thus SH, having low contents of chlorophyll and soluble protein in leaf, had a high PI and maintained an almost similar level to those of JC in RuBPCase activity. A higher efficiency in nitrogen use for photosynthesis is one of the features observed in this cultivar.

Keywords:

Chlorophyll content, Efficiency in nitrogen use for photosynthesis, F₁ hybrid rice, Leaf photo-synthetic rate, RuBPCase activity, Soluble protein content

[\[Full-text PDF \(869K\) \]](#) [\[References \]](#)

