

# Changes in Photosynthetic Apparatus in the Juvenile Rice Canopy and a Possible Function of Photosystem I in the Bottom Leaves

Jun-ya Yamazaki\*, Yasumaro Kamimura and Yasutomo Sugimura

Department of Biology, Faculty of Science, Toho University, Miyama 2-2-1, Funabashi, Chiba 274-8510, Japan. Fax: +81-47-472-5362. E-mail: junya@bio.sci.toho-u.ac.jp

\* Author for correspondence and reprint requests

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Changes in the photosynthetic apparatus and relative antenna sizes of photosystem (PS) I and PS II were measured in the rice canopy. We used juvenile rice seedlings to examine light utilization and its absorption in the bottom leaves and obtained the following results: (1) When referred to chlorophyll (Chl), levels of the electrochromic shift at 550 nm and cytochrome *f* decreased from the sixth to the third leaves, but there was no loss of pigment (P)-700. As a consequence, the PS II/PS I ratio significantly decreased from 1.5 in the sixth leaves to 0.9 in the third leaves. (2) The electron transport capacity in the sixth leaves was 1.5-times larger than that in the third leaves. (3) The levels of cytochrome *b<sub>6</sub>* referred to Chl were almost constant from top to bottom. (4) The photosynthetic performance of the leaf decreased concomitant with the depth, whereas the respiration was slightly increased. From these results, we hypothesize that there are maintenance mechanisms when the imbalances of light absorption and electron transport capacity occur in the bottom leaves.