

## 酸素同位体分別を利用したイネ葉身におけるシアン耐性呼吸の測定

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### Measurement of Cyanide-Resistant Respiration in Leaf Blade of Rice by Use of Oxygen Isotope Discrimination

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A reduction in the dark respiration of rice may improve dry-matter production and yield. To explore the possibility of controlling cyanide-resistant alternative respiration, of which energy production efficiency is low, we constructed a measuring system for cyanide-resistant respiration in leaf blades of rice with the use of oxygen isotope discrimination. Dark respiration was lowest at 10mM KCN, the inhibitor of cytochrome pathway, and it was lowest at 30mM salicylhydroxamic acid (SHAM), the inhibitor of the alternative pathway. Oxygen isotope discrimination was highest when leaf blade had HCN applied for 1 hour after being soaked in 10mM KCN for 3 minutes, and it was lowest when leaf blade was soaked in 30mM SHAM regardless of the soaking method. The discrimination factors of the alternative oxidase and the cytochrome oxidase of leaf blade were estimated as 20.3‰ and 13.9‰, respectively, and the ratio of cyanide-resistant respiration to dark respiration of leaf blade was 38%.

**Key words :** Cyanide-resistant respiration, Dark respiration, Inhibitor, Oxygen isotope, Rice