

HOME

About Journal@rchive

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.201-208

[\[ Full-text PDF \(982K\) \]](#) [\[ References \]](#)

#### Effects of Day Length on Gas Exchange Characteristics in Crassulacean Acid Metabolism Plant, *Dendrobium Ekapol* cv. Panda

Fumiaki SEKIZUKA, Akihiro NOSE, Yoshinobu KAWAMITSU, Seiichi MURAYAMA and Ken-ichi ARISUMI

- 1) College of Agriculture, University of the Ryukyus
- 2) College of Agriculture, University of the Ryukyus
- 3) College of Agriculture, University of the Ryukyus
- 4) College of Agriculture, University of the Ryukyus
- 5) Faculty of Agriculture, Kagoshima University

[Published: 1995/06/05]

[Released: 2008/02/14]

#### Abstract:

Effects of growth day length on gas exchange characteristics were investigated in a crassulacean acid metabolism (CAM) plant, *Dendrobium Ekapol* cv. Panda. Long (16h) and short (10h) day lengths were treated for 57 to 60 days in a growth chamber set at day/night temperatures of 30/25°C. As a control, plants were grown under natural conditions (light period was 12h). The data showed that the diurnal CO<sub>2</sub> exchange of *D.Ekapol* was classified as typical crassulacean acid metabolism type, an obligate CAM. The CO<sub>2</sub> balance of each phase was affected by the day length treatments. The CO<sub>2</sub> balances of short-day-length grown plants were increased in phase 1, whereas those of long-day-length grown plants were increased in phases 2 and 4. The CO<sub>2</sub> balance of whole day and diurnal malate fluctuation was increased in natural and short-day-length grown plants. The activity of phosphoenolpyruvate carboxylase did not response to the day length treatments. However, susceptibility of phosphoenolpyruvate carboxylase to malate was detected clearly in phase 4 and at the beginning of phase 1 under different day length. It was suggested that the difference between treatments was related to the changes in the CO<sub>2</sub> exchange rate in those phases.

#### Keywords:

Crassulacean acid metabolism, Day length, *Dendrobium Ekapol* cv, Panda, Leaf conductance, Malate susceptibility, Phosphoenolpyruvate carboxylase

[\[ Full-text PDF \(982K\) \]](#) [\[ References \]](#)

