

- [Find Similar Abstracts](#) (with [default settings below](#))
- [Table of Contents](#)
- [Reads History](#)
- [Translate This Page](#)

Title: Proposal of a growth chamber for growing Super-Dwarf Rice in Space Agriculture

Authors: [Hirai, Hiroaki](#) ; [Kitaya, Yoshiaki](#) ; [Tsukamoto, Koya](#) ;
[Yamashita, Youichirou](#) ; [Hirai, Takehiro](#)

Publication: 40th COSPAR Scientific Assembly. Held 2-10 August 2014, in Moscow, Russia, Abstract F4.7-11-14.

Publication Date: 00/2014

Origin: [ADS](#)

Bibliographic Code: [2014cosp...40E1208H](#)

Abstract

Space agriculture needs to be considered to supply food for space crew who stay in space over an extended time period. So far crops such as wheat, onion, oat, pea and lettuce grew to explore the possibility of space agriculture. Although rice is a staple food for most of the world, research on rice cultivation in space has not been done much. Rice grains are nutrient-rich with carbohydrate, protein and dietary fiber. Moreover, rice is a high yield crop and harvested grains have a long shelf life. However, the plant height of standard rice cultivars is relatively long, requiring much space. In addition, rice plants require higher light intensities for greater yield. For these reasons, it is difficult to establish facilities for rice culture in a limited space with a low cost. We propose to employ a super-dwarf cultivar and a small growth chamber with a new type of LEDs. The super-dwarf rice is a short-grain japonica variety and the plant height is approximately 20 cm that is one-fifth as tall as standard cultivars. The LED light used as a light source for this study can provide full spectrum of 380 nm to 750 nm. Air temperature and humidity were controlled by a Peltier device equipped in the chamber. The characteristics of the new type of LEDs and other equipments of the chamber and the ground based performance of super-dwarf rice plants grown in the chamber will be reported.
