

Evaluation of nutritional utilization of *Nostoc* sp. HK-01, as a food resource in closed bio-ecosystems

KIMURA, Yasuko^{1*} ; KIMURA, Shunta² ; KATO, Hiroshi³ ; ARAI, Mayumi⁴ ; SATO, Seigo² ;
TOMITA-YOKOTANI, Kaori²

¹University of Tsukuba and Jumonji University, ²University of Tsukuba, ³Mie University, ⁴National Museum of Emerging Science and Innovation

We study life-support in closed bio-ecosystems to provide food and oxygen for habitation in severe environments. We propose several species of organisms as candidate species. A terrestrial cyanobacterium, *Nostoc* sp. HK-01 has several unique abilities, photosynthesis, nitrogen fixation and tolerance to a space environment. Here, we propose to utilize *Nostoc* sp. HK-01 as a food resource in space environments such as Mars. *Nostoc* sp. HK-01 appears to have high nutritional values for humans. We will discuss the nutritional utilization of *Nostoc* sp. HK-01 in closed bio-ecosystems. Our results may contribute to the supply of food resources under severe conditions for life-support in closed bio-ecosystems.

Keywords: closed bio-ecosystems, cyanobacteria, food resource, *Nostoc* sp.HK-01, nutritional utilization