

## Utilization of a terrestrial cyanobacterium, *Nostoc* sp. HK-01, in closed bio-ecosystems

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Cyanobacteria has been used as a traditional food resource in many parts of the world. Food production under severe conditions is important for life-support in closed bio-ecosystems.

A terrestrial cyanobacterium, *Nostoc* sp. HK-01 may be utilized for bio-chemical circulation in closed bio-ecosystems, including Mars. *Nostoc* sp. HK-01, has several ability; photosynthesis, nitrogen fixation and space environmental tolerance to drought, vacuum, heat, UV, gamma-ray and heavy particle beams. We propose the utilization of a terrestrial cyanobacterium, *Nostoc* sp. HK-01, as food in closed bio-ecosystems.

In this study, we verified the utilization of terrestrial cyanobacterium *Nostoc* sp. HK-01 as a food resource on Mars, and will discuss technology for recycling this strain as a food resource in a closed bio-ecosystem.

Keywords: closed bio-ecosystems, cyanobacteria, food resources, *Nostoc* sp. HK-01