

Possibility of tree utilization in closed bio-ecosystems - Proposal research in model tree *Prunus* sp.

TOMITA-YOKOTANI, Kaori^{1*} ; BABA, Kei'ichi² ; KATOH, Hiroshi³ ; SUZUKI, Toshisada⁴ ;
KATAYAMA, Takeshi⁴ ; COSMO, Bon¹

¹University of Tsukuba, ²Kyoto University, ³Mie University, ⁴kagawa University

Living creatures on the earth have evolved since their origin. They are equipped with several important functions affecting each other. Knowledge about these functions and interactions with the ecological factors is essential for secure design of a closed-ecosystem with a limited number of living species under severe environments, such as space and deep sea or desert. We have studied trees for using their materials in such environment. There are various utilizations of trees on the earth. Trees have numerous abilities such as materials for several tools in a closed bio-ecosystem. Japanese flowering cherry trees, *Prunus* sp., have been studied as one woody plants in our research group. We carry out experiments to show actual usage in a closed bio-ecosystem by using a small bonsai, CosmoBon, that is easy to use physiological experiments after the selection of suitable and perfect strains of the tree. We will discuss the biological and technical systems for the establishment of closed systems.

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