

# Green Biotechnology

**R&D Project Title: Development of mycorrhizal symbiosis with high CO<sub>2</sub> fixation ability**

**Project Leader:** Katsuharu Saito  
Professor, Faculty of Agriculture, Shinshu University

**R&D Team:** Toyo University, Rakuno Gakuen University, Saitama University, Niigata University, The University of Tokyo



## Summary :

To maximise the ability of mycorrhizal symbiosis to activate CO<sub>2</sub> fixation, both mycorrhizal fungi and plants will be improved, developing mycorrhizal symbiosis systems with high CO<sub>2</sub> fixation ability.

For this purpose, we will develop an analytical tool for this complex biological system, symbiosis trans-omics technology. Using this technique, the activation mechanism of CO<sub>2</sub> fixation by mycorrhizal symbiosis and the control mechanism of the allocation of fixed carbon will be elucidated. At the same time, technology for isolating and culturing arbuscular mycorrhizal fungi and breeding technology will be developed to establish a new mycorrhizal fungi engineering system. Ultimately, a photosynthesis-activated symbiosis system will be established to increase the CO<sub>2</sub> fixation capacity of plants, and we will develop above-ground carbon-allocating plants and mycorrhizal carbon-allocating plants through carbon allocation control, contributing to carbon neutral in terms of both mass production of plant biomass and soil carbon sequestration via mycorrhizal fungi.

