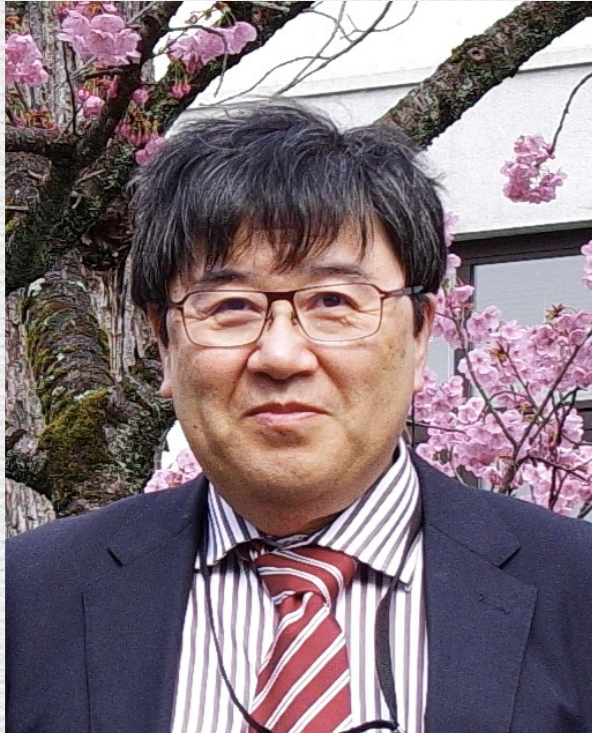


Terrestrial Microbiology and Systematics



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A wide variety of microorganisms inhabit terrestrial environments such as farmland and forests. In particular, fungi such as molds and mushrooms have evolved as decomposing microorganisms of terrestrial plants, many of them are specialized as plant-parasites or symbionts. It is said that infectious diseases of humans have changed the history of mankind, but infectious diseases of crops have also had a great impact on our history and cultures. On the other hand, symbiotic fungi with plants contribute to the host's adaptation in the environment hard to grow. Therefore, control of these fungi is essential for improving and stabilizing agricultural and forestry productivity.

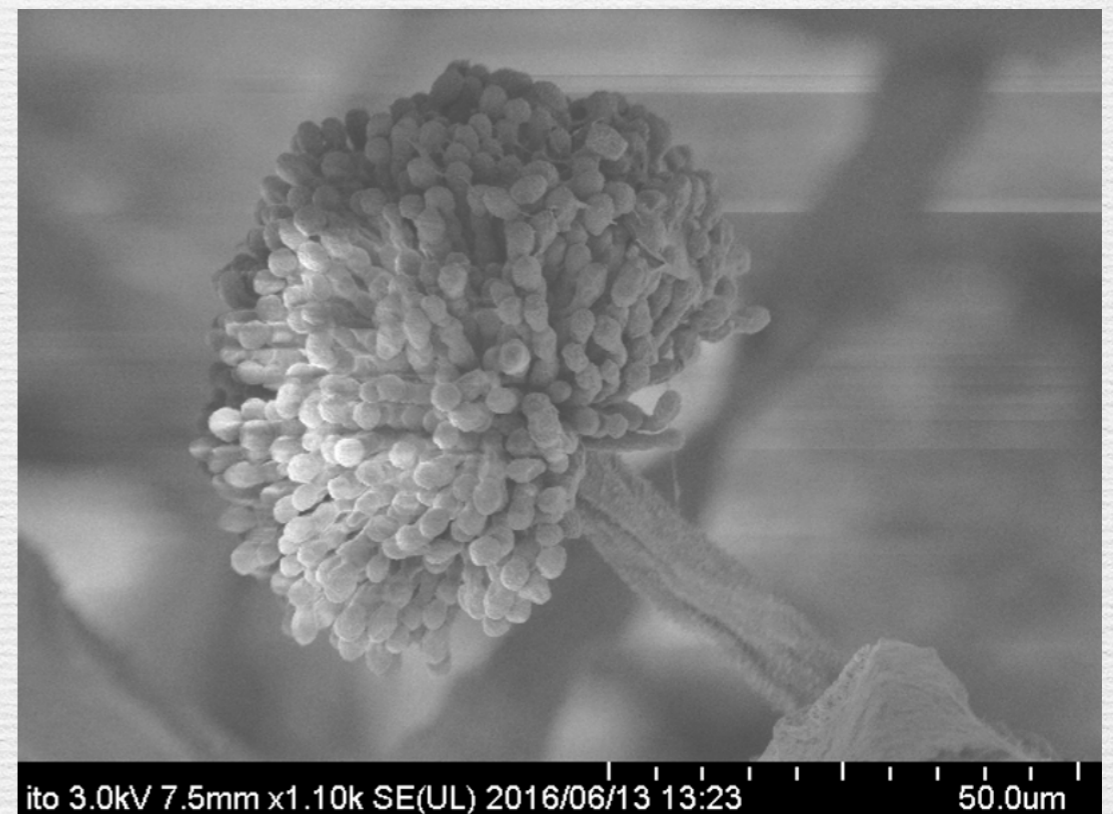
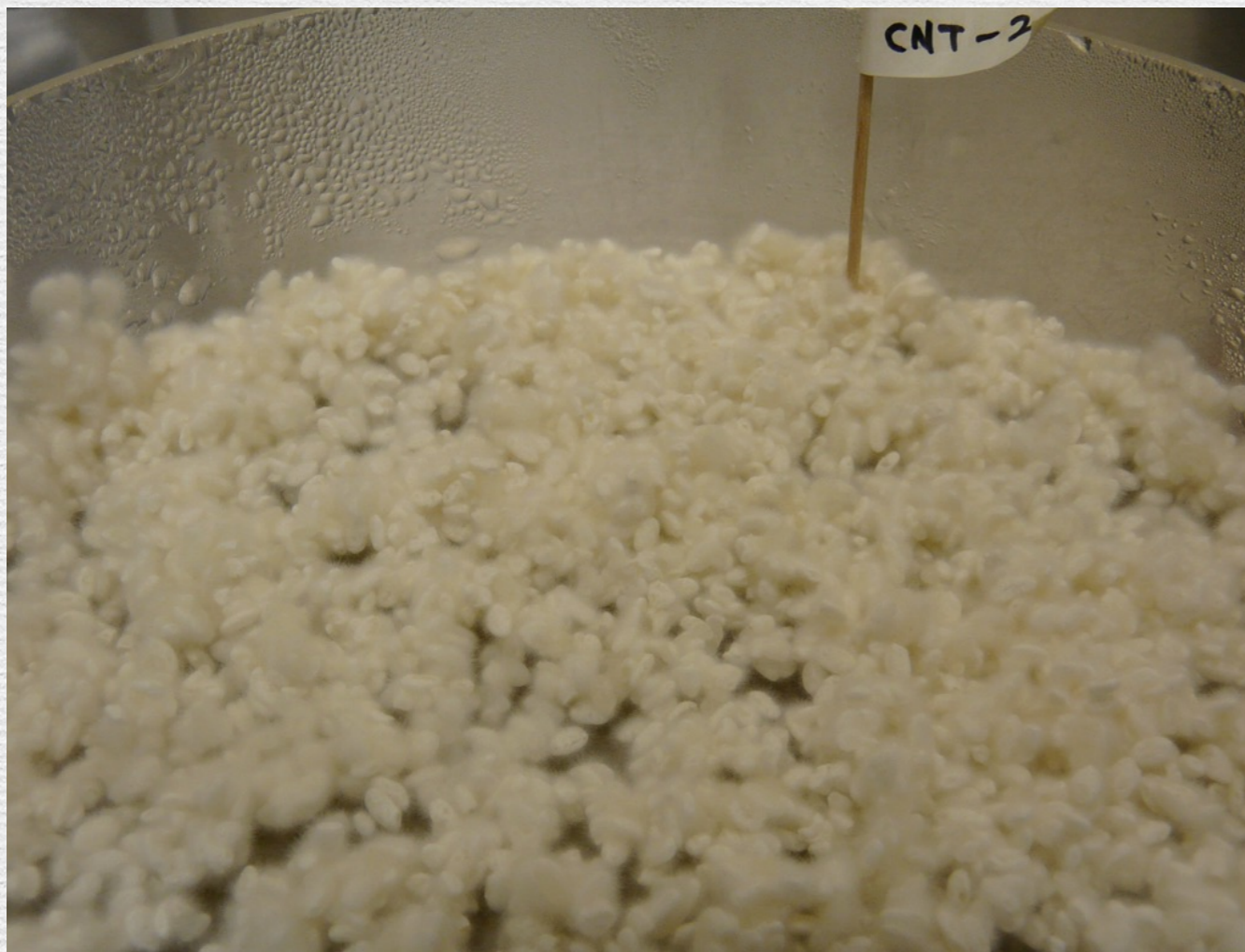


A foliage pathogen of maize (grey window) causes a bright symptom



A root symbiont mushroom (left top) and its associated organ with a host tree (mycorrhizha, right top).

Fungi are potent decomposers of plants and their products, play an important role of recycling of nutrients for plants, primary producers, in a terrestrial ecosystem. Fungi evolved to invade solid substances and highly developed abilities to break apart complexed organic materials into elementary substances. We often utilized these abilities for food processing and in industries.



“Koji” (left) is an important ferment product in Japan. Steamed rice grains are inoculated with *Aspergillus oryzae* (a organ developing spores is shown in the right picture). “Koji” is used for saccharification of rice, prior to alcoholic fermentation of “Sake”, proteolyses in “Miso” production from soybean.

Our activities

- ★ Our main targets: plant pathogens, symbionts, and saprobes
 - ☞ Identification and classification studies
 - ➔ for the developments of diagnostic methods, control or application of microbes for plant health
 - ☞ Physiological and ecological studies
 - ➔ for the developments of new fungicides, new approach of plant protection
 - ➔ to apply the functions of the microbes or microbes themselves for agriculture, industry and our life