## 3.027 Spore emission of shiitake mushroom (Lentinula edodes) as one of bioaerosol particles: Shape and size characteristics.

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## Abstract:

Radionuclides were released to natural environment by FDNPP (Fukushima Dai-ichi Nuclear Power Plant) accident and those were deposited on forest and soil grounds. High volume air samplers were set in mountain area in Namie town, Fukushima prefecture. The atmospheric radiocesium concentration increased in summer. The genome analysis for the collected particles indicated the contaminated mushroom spores were one of the major causes of such seasonal variation of atmospheric radiocesium.

Evaluations of the amount of emitted spore is important in order to assess the long-term effect of the contaminated suspended materials on human health. This study focuses on the emission mechanism of spore of shiitake mushroom (*Lentinula edodes*). Particle size and shape of the mushroom are measured by a digital microscope. The results show the area equivalent particle diameter of fresh spore and dry spore are 4.44  $\mu$ m and 3.93  $\mu$ m, respectively. The shape of fresh spore is oval and the length of long axis is about 1.5 times longer than that of short axis. In addition, PIV (Particulate Image Velocimetry) analysis measured the velocity of spore emission from the gills of mushrooms.