

Abstract Submitted  
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**Quantitative inactivation-mechanisms of *P. digitatum* and *A. niger* spores based on atomic oxygen dose** MASAFUMI ITO, Meijo University, HIROSHI HASHIZUME, Nagoya University, TAKAYUKI OHTA, Meijo University, MASARU HORI, Nagoya University — We have investigated inactivation mechanisms of *Penicillium digitatum* and *Aspergillus niger* spores using atmospheric-pressure radical source quantitatively. The radical source was specially developed for supplying only neutral radicals without charged species and UV-light emissions. Reactive oxygen radical densities such as ground-state oxygen atoms, excited-state oxygen molecules and ozone were measured using VUV and UV absorption spectroscopies. The measurements and the treatments of spores were carried out in an Ar-purged chamber for eliminating the influences of OH, NO<sub>x</sub> and so on. The results revealed that the inactivation of spores can be explained by atomic-oxygen dose under the conditions employing neutral ROS irradiations. On the basis of the dose, we have observed the changes of intracellular organelles and membrane functions using TEM, SEM and confocal-laser fluorescent microscopy. From these results, we discuss the detail inactivation-mechanisms quantitatively based on atomic-oxygen dose.

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