Irradiation of active oxygen species generated by barrier discharge is expected to be an alternative method for sterilization of agricultural products. Active oxygen species have short-life time less than 100 ms, and are removed from the surface of agricultural products promptly. Inactivation characteristics of fungal spore and viruses on agricultural products has been investigated using the combination method of the UV light and oxygen radicals.

Active oxygen species (O(1D), $^1\Sigma_g^+$) are generated from the ozone by the UV light irradiation, which is obtained from the germicidal lamp or the Excimer lamp. Lemon and rice seed as agricultural products, and seed of Arabidopsis are served for the treatment. The inactivation rate of fungal spores on the lemon surface increased with the irradiation period and reached 100% after 20 min (Fig.1). On the other hand, the ozone treatment requires more than 30 min for the sterilization. The inactivation mechanism would be oxidation of organelles of the spore. IR spectra of the sample surface indicate that the active oxygen species does not modify the surface of agricultural products.

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