

Inhibition of hyphal growth of the fungus *Alternaria alternata* by chlorine dioxide gas at very low concentrations

Morino H., Matsubara A., Fukuda T., Shibata T. *YAKUGAKU ZASSHI* 127, 773-777 (2007).

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極低濃度二酸化塩素ガスによる真菌 *Alternaria alternata* の菌糸成長抑制

The efficacy of chlorine dioxide (ClO₂) gas at very low concentrations for hyphal growth of *Alternaria alternata* related to fungal allergy was evaluated using a fungus detector. The fungus detector is a plastic sheet with a drop of spore-suspending medium, and it makes possible clear observations of hyphal growth with a light microscope. ClO₂ gas (average 0.075 ppm, 0.21 μg/l) inhibited hyphal growth of the fungus, but not germination of fungal spores. The hyphal length was more than 1780 μm under air conditions (control) and 49±17 μm under ClO₂ gas conditions for 72 h. According to the international chemical safety card, threshold limit values for ClO₂ gas are 0.1 ppm as an 8-h time-weight average and 0.3 ppm as a 15 min short-term exposure limit. From these data, we propose that treatment with ClO₂ gas at very low concentrations in space is a useful tool for the growth inhibition of fungi in the fields of food, medicine, *etc.* without adverse effects.

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