

Title Pulsed UV light for decontamination of cold storage facilities
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Abstract

The efficacy of pulsed ultraviolet light (PUV) for decontamination of air and surfaces in cold storage premises was tested in comparison with room disinfection by ultrasonic fogging with stabilized hydrogen peroxide. The Xtend® DeContam™ Alfa-01 unit was used as a PUV source. Preliminary experiments demonstrated high efficacy of the Xtend® DeContam™ Alfa-01 for inactivating spores of fungi *Botrytis cinerea* on the surface of nutrient medium. PUV significantly reduced the microbial load in the air of the storage room. Residual microbial counts after the PUV treatment resulted primarily from external re-contamination rather than survival of indigenous populations. Stabilized H₂O₂ reduced microbial counts in the air on the day of treatment but an increase of air counts was observed 24 hours later. Both treatments were effective in decontaminating the walls of the cold storage rooms. The study demonstrates the potential of PUV as a means for eradicating postharvest pathogen populations in cold storage premises. The PUV technique should be applied as part of a comprehensive sanitation regime for reducing the risk of re-contamination. Up scaling and optimization are necessary in order to reach the desirable effect under commercial conditions.