

Title Use of ozone in seed decontamination
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Abstract

Surface contamination of seed by pathogenic and/or saprophytes fungi is considered a serious problem because disease may be transmitted or because dangerous mycotoxins may be carried. The mycotoxins (aflatoxin B1, B2, G1, G2, M1, ocratoxin A, fumonisin, zearalenone, etc.) are produced by *Aspergillus* spp., *Penicillium* spp., *Fusarium* spp., etc. Ozone is a biocide used widely for microbial decontamination. It is classified as a safe substance “GRAS” (Generally recognized as safe) by the U.S. Food and Drug Administration. We report the results of a trial of ozone treatments in seeds decontamination. A local variety of pea seed collected in Southern Italy from a grower producing the seed himself for sowing, a 1-year old sample of stored wheat grain, cv. Cappelli, and barley grain, cv. Jaidor, were tested. Ozone at a concentration of 4 ppm was applied as a mixture of ozone + air for 1, 1.5 and 3 minutes. Untreated seeds were used as control. Treated and untreated seeds were analyzed and the fungi developed were identified and counted. *Fusarium* spp., *Alternaria* spp., *Penicillium* spp. and *Aspergillus* spp. were observed in most cases. Exposure to ozone for 1 min was partially effective, whereas treatment for 3 min gave good seed decontamination without any influence on germination.