F. J. M. Verhagen*[a], H. J. Swarts[b], J. B. P. A. Wunberg[b] and J. A. Field[a]

[a] Division of Industrial Microbiology, Department of Food Science, Wageningen Agricultural University, P.O. Box 8129, 6700 EV, Wageningen, The Netherlands

[b] Department of Organic Chemistry, Wageningen Agricultural University, Dreijenplein 8, 6703 HB, Wageningen, The Netherlands

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Abstract

Several species of basidiomycetes are capable of producing de novo high concentrations of chloroaromatic metabolites. However, the extent to which basidiomycetes contribute to the natural pool of adsorbable organic halogen (AOX) found in the environment is unknown yet. The purpose of this study was to determine the ubiquity of organohalogen production among basidiomycetes and to determine maximal specific organohalogen production rates. Finally, the fate of the fungal chloroaromatic compounds in the environment was studied.

A total of 191 fungal strains were tested for AOX production when grown on defined liquid medium. Approximately 50% of the strains tested and 55% of the genera tested produced AOX. Organohalogen production seemed to be a ubiquitous capacity among basidiomycetes. Many highly ecologically significant fungal species were identified among the moderate and high producers. Although it was found that the final AOX concentrations produced by *Hypholoma fasciculare* was strongly influenced by the substrate used, all maximal specific AOX production rates on different substrates were in the same order of magnitude. Seven new species and four and four new genera of basidiomycetes could be added to the list of known chlorinated anisyl metabolites (CAM) producing basidiomycetes. In degradation studies of the major fungal metabolite 3,5-dicloro-anisyl alcohol, it was found that in forest soils there seems to be ubiquitous mineralizing capacity for this chlorinated aromatic compound. It was found that *Burkholderia cepacia* was responsible for the fast degradation of the fungal compound in the oak forest soils.