Screening pentachlorophenol degradation ability by environmental fungal strains belonging to the phyla Ascomycota and Zygomycota

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Abstract Pentachlorophenol (PCP) bioremediation by the fungal strains amongst the cork-colonising community has not yet been analysed. In this paper, the co- and direct metabolism of PCP by each of the 17 fungal species selected from this community were studied. Using hierarchical data analysis, the isolates were ranked by their PCP bioremediation potential. Fifteen isolates were able to degrade PCP under co-metabolic conditions, and surprisingly Chrysosporia strophila, Trichoderma longibrachiatum, Mucor plumbeus, Penicillium janczewskii and P. gliandica were able to directly metabolise PCP, leading to its complete depletion from media. PCP degradation intermediates are preliminarily discussed. Data emphasise the significance of these fungi to have an interesting potential to be used in PCP bioremediation processes.

Keywords Pentachlorophenol (PCP) · Bioremediation · Ascomycetes · Zygomycetes · Cork

Abbreviations
PCP Pentachlorophenol
HQ Hydroquinone
CHQ Chlorohydroquinone
TeCHQ Trichlorohydroquinone
DCBQ 2,6-Dichloro-1,4-benzoquinone
TeCBQ Tetrachloro-1,4-benzoquinone
PCA Pentachloroanisole

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