

P027 Expression and characterisation of new manganese and lignin peroxidases from *Phlebia radiata*
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Manganese peroxidase 3 (MnP3) and lignin peroxidase 1 (LiP1) are extracellular peroxidases from the white-rot fungus, *Phlebia radiata*. *Phlebia radiata* enzymes are believed to degrade lignin more effectively than enzymes from other extensively studied lignin degrading organisms. The lack of information on the structural and functional characteristics of these enzymes has stimulated a need for the study of active recombinant enzymes from the recently cloned genes successfully cloned into the expression vector pFLAG1 and expressed in *E. coli*. After induction, the recombinant proteins were found to be sequestered in inclusion bodies. *In vitro* folding of both MnP3 and LiP1 into active enzyme was achieved using the published folding conditions [5mM CaCl₂, 0.5mM oxidized glutathione, 0.1mM dithiothreitol, 0.15mM urea, 20μM haemin, 50mM Tris, pH 9.5 and 200μg/mL protein] recently established for the versatile peroxidase from *Pleurotus eryngii*. Preliminary characterisation of both proteins has confirmed spectra typical of a six-coordinate high-spin haem, and is active in standard assays but both appear to be no more active than enzymes from other white-rot fungi.