Optimisation of fungal laccases for technological applications

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Occurring widely in nature, laccases are the simplest of the multicopper oxidases. The physiological functions of these extracellular glycoproteins are still under intense investigation although they are implicated in the synthesis and/or degradation of the biopolymer lignin, wound response mechanisms and pathogenic virulence of microorganisms. The laccase isolated from the white-rot fungus *Pycnoporus cinnabarinus* reduces oxygen at high potentials. From a technological standpoint, this enzyme is a valuable catalyst for a range of applications such as bioremediation, delignification and bio fuel cells.

Using dynamic electrochemical methods we are studying in greater detail the mechanism of catalytic action and the inhibition of *Pycnoporus cinnabarinus* laccase by anions. Further, we are using site directed mutagenesis to optimise the enzyme for biotechnology applications.