

E323 Expression of Iron- and Zinc- Containing Superoxide Dismutase in *Streptomyces coelicolor* Müller

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Streptomyces coelicolor Müller contains two superoxide dismutases (SODs), nickel -containing (NiSOD) and iron- and zinc- containing SOD (FeZnSOD). When the *sodF* gene (encoding FeZnSOD) was introduced into *E. coli* using pET system, FeZnSOD was overexpressed with full activity. When the *sodF* gene was cloned in pIJ702 and overexpressed in *Streptomyces lividans* TK24 , the expression of FeZnSOD was increased at least more than 30 times than control cell. But the expression level was significantly decreased by addition of nickel consistent with the regulation pattern in non-overproducing cell. The level of NiSOD expression of the *sodF* disruptant was higher than that of control cell, in the absence or presence of nickel. FeZnSOD overproducing cell was more resistant to oxidants such as menadione and lawsone than control cell but *sodF* disruptant survived as well as wild type cell in the presence of these oxidants. We also found that *sodF* disruptant was more sensitive to several metals.

E324 Cyanide Insensitive Electron Transport in Somatic Hyphae of Basidiomycete Fungi, *Pleurotus ostreatus*

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Purified mitochondria was obtained from somatic mycelium of a Basidiomycete fungus, *Pleurotus ostreatus*. To test the nature of the electron transport system of this fungus in terms of its sensitivity to potassium cyanide, a dye reduction assay was conducted using oxidized form of 2,6-dichlorophenolindophenol(DCPIP) as the electron acceptor, succinate as the substrate of succinyl dehydrogenase and potassium cyanide as the presumptive inhibitor of electron transport chain. Reduction of DCPIP was measured with Spectronic-20 at 600nm wave length. Along with this experiment, the effect of sodium azide to the electron transport of this fungus was also analyzed. Results revealed that the electron transport system of this fungus was not significantly affected by the solution of potassium cyanide at the concentrations of 0.025, 0.05 or 0.1M. Keeping these concentrations of potassium cyanide, measurement of dye reduction using 3 different concentrations of mitochondrial suspension also showed no significant differences between different amount of mitochondria in the extent of decolorization of DCPIP. These data strongly suggest that the somatic cells of *Pleurotus ostreatus* operate a cyanide insensitive electron transport chain. However, sodium azide, a common inhibitor of electron flow in many organisms, treated in similar ways as done with potassium cyanide produced a significant dye reduction in the same fungus indicating that this fungus has azide sensitive electron transport.