Characterization of three new manganese peroxidase genes from the ligninolytic basidiomycete Ceriporiopsis subvermispora

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Three new genes (Cs-mnp2A, Cs-mnp2B and Cs-mnp3) coding for manganese- dependent peroxidase (MnP) have been identified in the white-rot basidiomycete Ceriporiopsis subvermispora. The mature proteins contain 366 (MnP2A and MnP2B) and 364 (MnP3) amino acids, which are preceded by leader sequences of 21 and 24 amino acids, respectively. Cs-mnp2A and Cs-mnp2B appear to be alleles, since the corresponding protein sequences differ in only five residues. The upstream region of Cs-mnp2B contains a TATA box, AP-1 and AP-2 sites, as well as sites for transcription regulation by metals (two), cAMP (two) and xenobiotics (one). Some of these elements are also found in the regulatory region of Cs-MnP3. Transcription of Cs-mnp2A and Cs- mnp2B, but not that of Cs-mnp3, is activated by manganese. (C) 2000 Elsevier Science B.V.