

Sabirova, J.S., Cloetens, L.F.F., Vanhaecke, L., Forrez, I., Verstraete, W. and Boon, N. (2008) Manganese-oxidizing bacteria mediate the degradation of 17 α -ethinylestradiol. *Microbial Biotechnology* 1(6), 507-512.

Manganese (II) and manganese-oxidizing bacteria were used as an efficient biological system for the degradation of the xenoestrogen 17 α -ethinylestradiol (EE2) at trace concentrations. Mn²⁺-derived higher oxidation states of Mn (Mn³⁺, Mn⁴⁺) by Mn²⁺-oxidizing bacteria mediate the oxidative cleavage of the polycyclic target compound EE2. The presence of manganese (II) was found to be essential for the degradation of EE2 by *Leptothrix discophora*, *Pseudomonas putida* MB1, *P. putida* MB6 and *P. putida* MB29. Mn²⁺-dependent degradation of EE2 was found to be a slow process, which requires multi-fold excess of Mn²⁺ and occurs in the late stationary phase of growth, implying a chemical process taking place. EE2-derived degradation products were shown to no longer exhibit undesirable estrogenic activity.