

Activated Oxygen Is Formed by the Mycelium and Is Involved Mainly in the Primary Attack of LCC by *P. chrysosporium*

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ABSTRACT

Convincing evidence demonstrating the involvement of activated forms of oxygen in the fungal degradation of LCC have been obtained by different research groups. Among the most active intermediates stands $\cdot\text{OH}$, which is the subject of this work.

We describe here a method for the accurate detection of $\cdot\text{OH}$ based on the specific decarboxylation of benzoic acid. Using this method, we have demonstrated that the decarboxylating system is not diffusible in the culture medium, but is strongly associated with the mycelium. The 6-d-old fungus is able to form $\cdot\text{OH}$ even after transferring to new medium. Cell wall fractions were not able to decarboxylate benzoate.

Another topic that has been considered is the role of hydroxyl radical in LCC degradation. In agreement with others, we have established that $\cdot\text{OH}$ scavengers severely inhibit the degradation of LCC when added to the cultures.

If LCC was pretreated by chemically generated $\cdot\text{OH}$, it turns out that *P. chrysosporium* is able to use the solubilized fractions. However, in contrast to that of "native LCC" the metabolization of the solubilized moiety of LCC was not inhibited by $\cdot\text{OH}$ scavengers.

It is concluded that $\cdot\text{OH}$ may act only during the primary attack on LCC and not during the course of its subsequent degradative pathway.