INTERACTION OF PSEUDOMONAS PUTIDA CHLOROCATECHOL 1,2-DIOXYGENASE WITH SDS AND CTABR MICELLES: AN ESR STUDY.

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The biological role of chlorocatechol 1,2-dioxygenase (from *Pseudomonas putida*) enzyme is the synthetic aromatic hydrocarbons cleavage. Nowadays these compounds have been largely released to our environment by modern industries as manufacturing rejects, acting in this way as pollutants of several ecosystems. Recently was reported the first crystal structure determination of 4-chlorocathecol 1,2 dioxygenase from the Gram-positive bacterium *Rhodoccocus opacus* (pdb 1S9A), an enzyme from the same CCD family. This study revealed the existence of a ligand site for amphipathic molecules monomers raising questions about their role on enzyme activity. Prior Pp 1,2-CCD enzyme EPR essays in the presence of n-SASL spin labeled SDS and CTABr micelles showed enzyme/micelle interaction evidenced by spectral changes of Cat-16, 5 ,12 and 16-SASL labels and the enzymatic activity in the presence of SDS and CTABr micelles is decrease, indicating that the biding of amphipatic molecules could be a mechanism to regulate the protein catalytic activity. We believed our results support the hypothesis that the binding of amphipatic molecules by intradiol dioxygenases is a common feature among the members of this class of enzymes and that such binding is probably used to control the catalysis inside the cell. Financial support: PRONEX/FAPESP/CNPq, CAPES. Keywords: chlorocatechol, dioxygenase, enzyme, ESR, interactions, micelles.