

Isolation and Identification of *Klebsiella* from Brazilian Cerrado Soil and the Use of their Enzymes for Chemical Modification of Fungicides

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In this research, soil samples (Brazilian Savannah – Cerrado) proceeding from soy crops treated with Opera[®] (epoxiconazol and pyraclostrobin) have been used as source of resistant microorganisms. The collecting point was characterized as a place of risk for ecological accidents since the soil have good level of infiltration and storage of water, areas of declivity combined with high activity of extensive agriculture and intense management of pesticides,. The microorganism isolated is a gram-negative bacillococcus with polymorphic characteristics. Biochemical identification conducted through Bactray[®] method resulted in 99% correlation with the genus *Klebsiella*, and molecular identification by the gene 16S rDNA, in 99% correlation with species *K.pneumoniae* and *K.oxytoca*. When *Klebsiella* was incubated in the selective medium J.E. supplemented with 0.03% Opera for 120 h, it was observed a reduction of 43.7% in the absorbance of the fungicide compounds with maximun absorbance at 200 nm, 55.7% at 220 nm and 28.7% at 260 nm. The enzymes produced by *Klebsiella* were isolated from medium by precipitation with acetone and identified as a peroxidase and an esterase. The purification of esterase resulted in on single band in SDS-PAGE. The use of these enzymes for treatment of the epoxiconazol resulted in a decrease in the absorbance at 200, 220 and 260 nm of 99.7%, 95.7% and 99.5%, respectively; with pyraclostrobin, decreases of 95.5% and 80.2% for 200 and 260 nm respectively were observed.

Keywords: *Klebsiella*, Pyraclostrobin, Epoxiconazole, Peroxidase, Esterase