

ANTIOXIDANT RESPONSES OF *KLEBSIELLA OXYCOTA* STRAINS IN THE PRESENCE OF HERBICIDE ACETOCHLOR

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Reactive Oxygen Species (ROS) are normally produced by the cell metabolism but exogenous sources may activate defense mechanisms in microorganisms in response to oxidative stress caused by these xenobiotics. The herbicide Acetochlor has high toxicity and is used to prevent the germination of weed species. We have tested the effect of Acetochlor on two *Klebsiella oxycota* strains (#1 and #2). The bacteria strains grown under control condition and in the presence of the herbicide were used for the extraction of soluble proteins. SDS-PAGE was used to determine the protein profile and the activity of antioxidant enzymes catalase (CAT), glutathione reductase (GR) and glutathione-S-transferase (GST) was determined in a spectrophotometer and by non-denaturing PAGE in the case of CAT, GR and Superoxide Dismutase (SOD). The intensity of some protein bands were altered for strain #2 in the presence of the herbicide. The *Klebsiella* strains responded differently to the herbicide. The Acetochlor treatment induce the expression of new isoenzymes of CAT and SOD for the strain #2 and GR for both strains #1 and #2.

The results suggest that the herbicide induced oxidative stress by increasing ROS production and that the bacteria responded through a diverse of antioxidant systems.

Key words: Acetochlor, oxidative stress, bacteria