Identification of Serratia Liquefaciens Resistant Pesticides: ANTRACOL 700 PM, PRIORI XTRA and SYSTANE EC Techniques for Application in Bioremediation.

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The Brazilian agriculture in recent years displayed a great capacity to adapt to market and world economy. The use of agrodefensivos is considered an important component in the complex agricultural production, but may promote an imbalance in the environment. The Bioremediation involves techniques which use microorganisms and enzymes for the degradation of toxic compounds making them non-toxic or less toxic. This study performed the isolation and identification of a microorganism resistant to pesticides: ANTRACOL 700PM (Propineb), PRIORI XTRA (azoxystrobin / cyproconazole) and Systane EC (myclobutanil), for possible application in bioremediation of contaminated sites. Samples of waste pesticides were collected subsequently homogenized and inoculated on plates with selective medium. Only a microorganism tested showed resistance to pesticides tested and was subjected to biochemical tests, Gram stain, PCR and sequence analysis obtained. The isolated was morphological and biochemically characterized as Gram-negative, oxidase negative. Biochemical characterization showed positive results for the tests of b-galactosidase, lysine decarboxylase, ornithine decarboxylase, urease, Simmons citrate, Rhamnose, salicin, arabinose, saccharose, mannitol, raffinose. The biochemistry analysis has displayed 95% of correlation with Serratia liquefaciens. The 16S rDNA sequence was amplified using primers Y1 and Y23 resulting in 867bp. The analysis of the amplified sequence in GenBank showed similarity of 90% with Serratia genus and 88% for the species S. Liquefacies (access: R4PF86G013). The morphological and biochemical and molecular identification showed high similarity to the isolated microorganism Serratia genus.

Keywords: 16S rDNA, characterization biochemical, characterization morphological, pesticides.

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