

**Title: FIPRONIL PESTICIDE USE AS ONLY CARBON AND NITROGEN SOURCES BY GRAM NEGATIVE BACTERIA**

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**Abstract**

The agricultural production in Brazil has shown a strong growth in recent years, also increasing the use of pesticides, which in large quantities harm and contaminate the environment where it is being applied, and cause serious damage to local flora and fauna, including humans. Due to the high contamination, the use of bioremediation, techniques that uses biological activity to transform contaminants into inert substances, has been much explored in recent years, owing to its low costs and better efficiency compared to other techniques. For bioremediation occur, the presence of microorganisms capable of degrading the contaminating compounds is necessary, pesticides in the case, through metabolism of microorganisms, therefore, studies are needed on the metabolism of these microorganisms, checking if evaluated pesticides provide the sources of carbon and nitrogen necessary for the growth of bioremediation agents. This research aimed to evaluate the use of the pesticide fipronil as the only carbon and nitrogen sources to bioprospecting bacteria in corn and sugar cane plantations history pesticide use. For this evaluation, it was outlined an experiment in which Gram-negative bacteria from the collection of laboratory and isolated in medium with Fipronil as its only carbon source, was also tested as the growth of same growth medium MSN. The growth medium was sterilized by autoclaving at 120°C for 20 minutes and added 200 mg.l<sup>-1</sup> fipronil in each, previously autoclaved. The experiment was performed in duplicate, with initial OD<sub>600</sub> of 0.01. The Erlenmeyer flasks were placed in a shaker orbiting at 100 rpm and temperature of 30°C. The monitoring of the microbial growth was examined by constructing a curve in function of time, analyzing optical density in a spectrophotometer at 600 nm. After evaluating five daily samples, it was noted that there were no significant differences in bacterial growth between samples containing ammonium nitrate, and samples containing only Fipronil, concluding therefore that the fipronil was used by bacteria not only carbon source but also as the only nitrogen source. Until the present date there have been no described studies in which fipronil was evaluated as sole source of carbon and nitrogen.

**Keywords:** bioprospecting, fipronil, gram-negative bacteria, carbon and nitrogen sources

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