**TITLE:** ANTIFUNGAL ACTIVITY OF ESSENTIAL OILS AS A BIOFUNGICIDE SOURCE FOR FUNGUS REDUCTION IN CORN GRAINS

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**ABSTRACT**

Maize is one of the major cereals grains produced in the worldwide and is used in human and animal feeding. However, it has been a major concern during the storage of this grain, due to contamination by fungi which occurs, and toxic substances synthesized by these named mycotoxins. When these are ingested in the form*in natura* grain and maize by-products, they can cause serious damage to the health of humans and animals. The main fungi that affect maize in farming and storage producing mycotoxins are *Aspergillus* spp. and *Fusarium* sp.In order to reduce contamination by fungi in grains, fruits and other foods, alternatives have been studied with intention to replace the old chemical fungicides by natural biofungicides. From some plant studies, the potential of plant extracts, such as essential oils in antifungal activities, has been evaluated, and these have demonstrated an excellent antifungal potential in some fungal species. To evaluate the effects of essential oils (pitanga, melaleuca, guaçatonga, lavender, citronella, patchoulli, oregano and garlic) on radial mycelial growth of *Aspergillus* sp. and *Fusarium* sp. The plating technique was used in Potato Dextrose Agar (PDA, 3.9%) with eight treatments, comprising six concentrations of each of the seven essential oils (0.53%, 0.27%, 0.13%, 0.07%, 0.03% and 0.02%) in the PDA medium plus the control (pure PDA medium). Then, a micellial disk (7 mm diameter) of each fungal genus was placed in the center of the surface of the plates with the respective treatments, with growth in a bacteriological oven for 7 days at 25°C. The results were evaluated by the use of non - parametric Kuskal Wallis statistics, considering 5% of significance, due to the fact that these data did not present normality and homogeneity of variances. It was obtained that the oregano essential oil differed from the others, being the most efficient in reducing the radial growth of *Fusarium*sp., and that guaçatonga essential oil was less efficient than the oils of oregano, pitanga and patchouli, while pitanga, citronella, melaleuca, patchouli and garlic did not differ among them, however all the oils were better than the control. For the *Aspergillus* sp.the most essential oils in the reduction of mycelial radial growth were oregano and garlic, while the others did not differ from each other nor were they better than the control.

**Keywords:** natural fungicides, storage, Zeamays, molds

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