TITLE: ANTIFUNGAL ACTIVITY OF ESSENTIAL OILS ABOUT *Botrytis cinerea*

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ABSTRACT:

The strawberry is a fruit that has high moisture content and low physical resistance, which makes it very perishable, and thus, is characterized as susceptible to attack by pathogens, such as the fungus *Botrytis cinerea*. This fungus causes the gray mold of the strawberry, making it unfeasible for commercialization and consumption. In search of alternatives to control the pathogen the use of natural products, with low levels of toxicity and easy handling, becomes an option. Thus, the present work had as purpose to use different essential oils in the control of *B. cinerea*. The oils of citronella (*Cymbopogon* sp.), guaçatonga (*Casearia sylvestris* Sw.), melaleuca (*Melaleuca* sp. L.), patchouli (*Pogostemon cablin* Benth) and pitanga (*Eugenia uniflora* L.) were used. The oils have a known chemical composition determined by gas chromatography coupled to mass spectrometry. The antifungal activity tests were performed using the Broth Microdilution methodology, proposed by the National Committee for Clinical Laboratory Standards (NCCLS, 2002), in which the minimum inhibitory concentration (MIC) of each oil tested was obtained. The *B. cinerea* isolate was obtained from the pathogenic fungal culture collection of the Phytosanitary Laboratory of the Federal Technological University of Paraná, Campus Dois Vizinhos-PR. Melaleuca essential oil had MIC of 4000 μg mL^{-1}. For patchouli, the value found was 2000 μg mL^{-1}. Pitanga and guaçatonga oils presented MICs of 1,000 μg mL^{-1}. Citronella oil showed the highest antifungal potential, with an MIC value of 125 μg mL^{-1}. Thus, only citronella oil is considered to be highly effective, since only compounds with concentrations equal to or less than 500 μg mL^{-1} can be classified in this way. This action may be related to the major compound of the oil, being this b-citronellal, because being an acyclic monoterpene, has the capacity to react oxidatively and alter the permeability of the cell wall of the tested fungus, inhibiting its development.

Keywords: Gray mold, strawberry, citronella, natural products