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Antimicrobial activity evaluation of crude extract of *Capsicum chinense*

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Introduction: Increasing antimicrobial resistance and infections by the genus *Trichosporon* has led to interest in developing new therapies for medicinal plants. The fruit of *Capsicum chinense* (pepper-pout) has capsaicinoids and capsaicin, is a compound extremely annoying to have analgesic, anti-inflammatory and antioxidant effects. Some substances of the genus *Capsicum* have pharmacological properties but still poorly studied, although recent studies show that the crude extract has antimicrobial activity. **Objective:** The objective of this study was to investigate the antimicrobial activity of crude extract of *Capsicum chinense* against the yeast of the genus *Trichosporon* and strains of bacteria, using different methods and carry out the determination of Minimum Inhibitory Concentration (MIC) by microdilution method second CLSI (Clinical and Laboratory Standards Institute). **Methods:** The crude extract was obtained by alcoholic percolation and then dried in evaporation route. From the stock solution 80 mg/mL serial dilutions were made in the following concentrations: 40, 20, 10, 5, 2.5, 1.25, 0.625, 0.312 and 0.156 mg/mL used in the following protocols: broth microdilution method (CLSI), Agar-diffusion method, Dilution method of the extract in agar, Agar diffusion method by persistent diffusion, Agar diffusion method for inoculum on the surface. From the stock solution to 320 mg/mL serial dilutions were made in the following concentrations: 160, 80, 40, 20, 10, 5, 2.5, 1.25, 0.625 mg/mL used in the following protocols: broth microdilution method with visual reading and Minimum Fungicidal Concentration Test (CFM). We analyzed eight strains of yeasts (6 *Trichosporon asahii*, 1 *T. asteroides*, 1 *T. ovoides* and a control strain of *Candida albicans* ATCC 10231) submitted to all methods and 7 of bacteria (*Micrococcus luteus* ATCC 10240, *Salmonella thyphymurium* ATCC 14028, *Enterococcus faecium*, *Proteus mirabilis* ATCC 25933 and *Staphylococcus aureus* ATCC 6538, *Bacillus cereus* ATCC 11778 and *Escherichia coli* ATCC 259222) only by the CLSI as last quoted concentration. All methods were performed in duplicate. **Results:** Due to the strong pigmentation of the crude extract was not possible to make satisfactory reading in the ELISA reader of the broth microdilution method. So we decided to make a visual reading. The MIC of *Micrococcus luteus* ATCC 10240, *Salmonella thyphymurium* ATCC 14028, *Enterococcus faecium*, *Proteus mirabilis* ATCC 25933 and *Staphylococcus aureus* ATCC 6538 was 80 mg/mL and for *Bacillus cereus* ATCC 11778, *Escherichia coli* ATCC 259 222 was 40 mg/mL and all *Trichosporon*'s samples showed MIC of 160mg/mL. All yeast strains grew at all concentrations tested in MFC, with the exception of *C. albicans* ATCC 10231 (160 mg/mL), and also in other employed methods. **Conclusion:** The result shows that the crude extract of *Capsicum chinense*, in tested concentrations, was effective on the analyzed bacteria, but not against yeasts of the genus *Trichosporon*, although the sample of *C. albicans* was inhibited at a concentration of 160 mg/mL.

Keywords: *Capsicum chinense, Trichosporon* spp., antimicrobial activity.