

TITLE: MINIMUM INHIBITORY CONCENTRATION OF COUMARIN AGAINST *Candida albicans*

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ABSTRACT:

Coumarin, found mainly in guaco leaves, is used for the treatment of respiratory diseases, such as asthma and bronchitis, because it presents bronchodilator, expectorant, anti-inflammatory and antiallergic actions. Other activities reported to this compound are the action as hepatoprotective, antioxidant, antiallergic, anti-inflammatory, antithrombotic, antiviral and anticancer. The aim of the study was to evaluate the antifungal activity of coumarin by determining its Minimum Inhibitory Concentration (MIC) against three *Candida albicans* strains. The microdilution method was applied in Muller Hinton Broth with 2% glucose (CMHG). A stock solution was prepared with DMSO and pluronic F-127 for coumarin solubilisation, and double concentrations in CMHG were prepared by serial dilution. 50 µL of each double concentration was added in microplate columns and 50 µL of inoculum of ATCC 26790 (3 replicates), ATCC 24433 (3 replicates) and ATCC 90029 (2 replicates) were added in microplate lines. The concentrations tested were between 512 and 1 µg.mL⁻¹. It was tested the itraconazole like control drug, with serial concentrations of 256 to 0.5 µg.mL⁻¹. The inocula were standardized on the 0.5 MacFarland scale, followed by a 1:10 dilution in saline and a 1:20 dilution in CMHG, for cell concentration being approximately 2.5x10³ CFU.mL⁻¹ after addition in the wells. Negative and positive controls were prepared. After incubation of the microplates at 35°C for 24 hours, 50 µL resazurin 0.1% was added to read. For the ATCC 90029 the MIC was 512 µg.mL⁻¹ and for the ATCC 26790 and ATCC 24433 the MIC was 256 µg.mL⁻¹. For the three strains MFC was 512 µg.mL⁻¹. These results were considered significant. The itraconazol control drug presented MIC and MFC of 4 µg.mL⁻¹ for the ATCC 26790 and ATCC 24433. The ATCC 90029 was not inhibited at the highest tested concentration of itraconazole, with MIC and MFC considered >256 µg.mL⁻¹.

Keywords: coumarin, antifungal, *Candida albicans*.