TITLE: ALLYLIC SELENOCYANATES AS A POTENTIAL NEW CLASS OF ANTIFUNGAL AGENTS

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ABSTRACT: Yeast of the genus Candida is a microorganism commonly found in the human microbiota, being considered an opportunistic pathogen. It presents a substantial clinical importance for immunocompromised patients and hospital environments, being related to high mortality rates. Increasing cases of resistance have been reported, as well as the emergence of less susceptible species, resulting in difficulty and failure therapeutics. In this way the present study aims at the *in vitro* evaluation of the antifungal potential and possible mechanisms of action of a series of synthetic compounds derived from allylic selenocyanates (ASs) against species of *Candida* sp. 36 *Candida* isolates belonging to *C. albicans, C. glabrata, C. tropicalis* and *C. krusei* species were selected. The minimum Inhibitory Concentration (MIC) was evaluated for 12 allylic selenocyanate derivatives (five new) according to the broth microdilution method, considering the guidelines of the Clinical and Laboratory Standard Institute (CLSI), documents M27-A3 (2008) and M27-S4 (2012). The plates were incubated at 35 °C for 48 hours. The reading was performed through visual observation considering MIC as the lowest concentration of the compound capable of inhibiting 100% fungal growth. Fluconazole was the drug used as control for the assay. Besides, the possible mechanisms of action were evaluated. ASs were active for all *Candida* strains tested reaching concentrations in the order of ng mL^{-1}. These compounds does not act on the cell wall or fungal membrane, suggesting a different mechanism of action from most commercially available antifungal agents. Considering these results added to the susceptibility and parameters of Lipinski, 2c and 2d are shown promising molecules for the development of a new antifungal agent for treatment of *Candida* infections.

Keywords: Allylic selenocyanates, antifungal, *Candida*, candidiasis, fungal infection.

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