In vitro anti-Candida albicans activity of new thiatriazole derivative agents

Łukaszuk CR [1*A-F], Niewiadomy A.[2 A-F]

1 Department of Integrated Medical Care, Medical University of Białystok, Poland
2 Department of Chemistry, University of Agriculture, Lublin, Poland

---

A- Conception and study design; **B -** Collection of data; **C -** Data analysis; **D -** Writing the paper;
E- Review article; **F** - Approval of the final version of the article; **G** - Other (please specify)

ABSTRACT

Purpose: We tested the antifungal activity of N,N-phenyl-1,2,3,4-thiatriazole-5-yl-2,4-b-resorcyl-carbothioamide (PTR) ; n-3-(1,2,4-dithiazole-5-thione)-β-resorcylcarbothioamide (DTRTA) ; N,N-phenyl-1,2,3,4-thiatriazol-5-yl-2,4-b-resorcyl-carbothioamide (PHARA) against *Candida albicans* strains *in vitro*.

Materials and methods: We synthesized PTR, DTRTA and PHARA at the Department of Chemistry, University of Agriculture in Lublin. We tested the selected three samples with the lowest value of MIC - PTR, DTRTA and PHARA. A reference strain of *C. albicans* ATCC 10231 and 250 strains of *C. albicans* isolated from patients were used. Enzymatic activity of the yeast-like fungi was performed by API ZYM test (bioMériux).

Results: The mean MIC *C. albicans* ATCC 10231 on Sabouraud's Medium was 12.5 mg/L, and YNB Medium and RPMI medium - 6.25 mg/L. The mean MIC *C. albicans* on Sabouraud's Medium - exposure to PTR - 19.77 mg/L; exposure to DTRTA - 21.06 mg/L, exposure to PHARA - 21.54 mg/L; on YNB Medium - exposure to PTR - 17.79 mg/L, exposure to DTRTA - 16.23 mg/l, exposure to PHARA - 18.92 mg/L; and RPMI Medium - exposure to PTR - 12.73 mg/L, exposure to DTRTA -10.93 mg/l, exposure to PHARA - 10.65 mg/L. The reference *C. albicans* strain ATCC 10231 had 5 enzymes inhibited – exposure to PTR inhibited the enzymatic activity of 13 enzymes, exposure to DTRTA inhibited the enzymatic activity of 10 enzymes, and exposure to PHARA inhibited the enzymatic activity of 13 enzymes. The *C. albicans* isolates had 3 enzymes inhibited - after exposure to PTR - 5 enzymes were inhibited, exposure to DTRTA - 9 enzymes were inhibited, and exposure to PHARA - 4 enzymes were inhibited.

Conclusion: The synthesized compounds PTR, DTRA and PHARA exert a moderate antifungal activity against *C. albicans* strains *in vitro.*

Key words: Thiatriazole, antifungal activity, *Candida albicans*, *in vitro*

DOI: 10.5604/01.3001.0009.5789