ANTIFUNGAL ACTIVITY OF DIOSGENYL 2-AMINO-2-DEOXY-β-D-GLUCOPYRANOSIDE HYDROCHLORIDE AND ITS *N,N*-DIALKYL DERIVATIVES AGAINST CLINICAL ISOLATES OF *CANDIDA* SPP.

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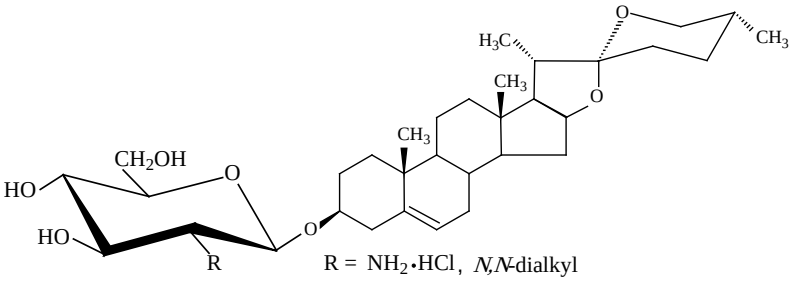
Candida species are common pathogens which cause opportunistic oral and genital infections in humans. Factors favoring the development of candidiasis are cancer, AIDS, treatment with antibiotics, corticosteroids or cytotoxic drugs. Strains of *Candida albicans* constitute about 60% of the strains isolated from patients suffering from candidiasis, but recent data show the increasing occurrence of strains called non-albicans *Candida*. Species belonging to this group are often characterized by reduced susceptibility to antifungal agents [1].
Systemic fungal infections (fungemias) have emerged as an important cause of morbidity and mortality in immunocompromised patients [2]. In view of the fact that non-albicans infections are becoming more common and non-albicans species are more resistant to the antifungal treatment, we have made an attempt to find new substances active against those pathogens.
The glycosides, which we have synthesized, consist of diosgenin and D-glucosamine derivatives. These glycosides belong to the group of saponins, which have not been found in natural sources. The synthetic strategy is based on the preparation of glycosyl donors, coupling of these donors with diosgenin, deprotection of NH_2 and OH groups and finally receiving of *N,N*-dialkyl derivatives. The structures of our products were confirmed by IR, ^1H, ^{13}C NMR spectroscopy and mass spectrometry.



Minimum inhibitory concentration was determined for five compounds and conventional antifungal agents (amphotericin B, clotrimazole, fluconazole, itraconazole, natamycin, nystatin). Antifungal activity against reference strains (*Candida albicans* ATCC 10231, *C. tropicalis* PCM 2681, *C. lipolytica* PCM 2680) and clinical isolates (*C. glabrata, C. krusei, C. tropicalis, C. parapsilosis*) was evaluated. All reference strains turned out to be sensitive to the saponins and antifungal agents. Among clinical strains of *C. krusei* and *C. tropicalis* we have identified numerous isolates resistant to tested compounds at applied concentrations (0.025-512 μg/mL). The saponins presented very strong activity towards clinical isolates of *C. glabrata* and *C. parapsilosis* comparable or stronger than conventional antimicrobials. Results of presented study suggest potential application of saponins as future antifungal agents.
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