Synthesis of 5-aminoacetyl-eugenol glucosides as potential antifungal agents

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**Introduction**

The treatment of fungal infections has become a recurrent problem due to the emergence of strains resistant to existing drugs¹. In this way, new chemical structures are pursued and can be obtained when natural products are studied, such as eugenol (1). The antimicrobial action of this product has been proven in several works² and structural modifications can be performed aiming at improving its biological activities. In this context we describe herein the synthesis of aminoacetyl-eugenol glucosides, since these types of molecular modifications seemed to increase the antifungal potential as described elsewhere³⁴.

**Results and Discussion**

The followed synthetic route is depicted in Figure 1. Briefly, eugenol was selectively meta-nitrated by bismuth nitrate⁵ and the product 5-nitroeugenol was reacted with glycosyl bromide 3. The reduction of 4 by stannous chloride afforded the amino derivative 5 which was then reacted with diverse acyl chlorides and pyridine in ether, following deacetylation, which led to products 6a-d and 7a-d.

All the steps were performed with success (except the deacetylation of 6d, not done yet). The raw products were purified by column chromatography or crystallization, obtaining products with the following yields (calculated from 4) and physical aspects: 6a = 49.1% (beige solid); 7a = 10.1% (light beige solid); 6b = 30.2% (white solid); 7b = 18.4% (white solid); 6c = 50.3% (yellow solid); 7c = 41.2% (light yellow solid); 6d = 13.7% (white solid). The derivatives were characterized by spectroscopic methods by which the chemical identities could be confirmed. These molecules were synthetized for the first time and they belong to a broader group of eugenol derivatives being prepared by our research group. At this moment, they are being conducted to biological evaluation in order to check its potential as antifungal agents against Candida albicans and non-albicans species.

**Conclusions**

Seven new eugenol derivatives were synthesized, purified and characterized by traditional methods. They are now under antifungal evaluation.

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