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RESIN ACIDS AS RAW MATERIAL FOR THE PREPARATION OF CYCLODEXTRIN COMPLEXES LOADED WITH DEHYDROABIETITOIC ACID AND CHROMENOL HYBRID

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Abstract. In this work new methods to obtain complexes from *β*-cyclodextrin and dehydroabietic acid with chromenol-triazol hybrid with the sizes limits of approximately 0.1-250 μm are reported. Kneading, co-evaporation and co-precipitation for the resolution of racemic 2-tert-butyl-3-(1*H*-1,2,4-triazol-1-yl)-2*H*-chromen-2-ol for obtaining micro- and nanoparticles have been optimized. *In vitro* dissolution studies of the synthesized compounds in phosphate buffer (pH 6.8) showed an improved dissolution rate of chromenol-triazol hybrid in the inclusion complexes compared to the free form. It has been found that *β*-complexes of *β*-cyclodextrin loaded with dehydroabietitoic acid and chromenol hybrid show good antibacterial activity with MIC and MBC values ranging from 0.72 to 44.45 μM. The evaluation results revealed that all compounds showed good antifungal activity with MIC values ranging from 0.02 to 0.4 mM and MFC from 0.07 to 0.52 mM better than the reference drugs ketoconazole (MIC and MFC values at 0.28-1.88 and 0.38 mM to 2.82 mM, respectively), bifonazole (MIC and MFC values at 0.32-0.64 and 0.64-0.81 mM) and nistatin (MIC and MFC values at 0.55-0.65 mM and 0.65-0.79 mM).

Keywords: *β*-cyclodextrin, dehydroabietic acid, 2-*tert*-butyl-3-(*1H*-1,2,4-triazol-1-yl)-2*H*-chromen-2-ol, chromenol-triazol hybrid, antimicrobial activity.

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