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ENANTIOSEPARATION OF SOME ANTIFUNGALS USING COVALENTLY IMMOBILIZED POLYSACCHARIDE BASED CHIRAL SELECTORS AND POLAR ORGANIC MOBILE PHASES BY HPLC

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Chiral antifungals are used as veterinary and human drugs, as well as agrochemicals. They are especially used to cure fungal infections that are commonly occurred on the nails, hair and skin. Those antifungals in use which show efficacy against fungal diseases, and mostly target specific components of fungal plasma membrane or its biosynthetic pathways. Enantioselectivity of chiral imidazole and triazole derivatives in biological action, metabolism and pharmacokinetics is well documented. In this work, separation of enantiomers of some chiral antifungals was studied on 2 polysaccharide-based chiral columns by high performance liquid chromatography (HPLC) using polar organic mobile phases such as methanol, acetonitrile, ethanol and isopropanol. 10 chiral antifungal pharmaceuticals (ketoconazole, sertaconazole, miconazole, terconazole, tioconazole, isoconazole, fluconazole, luliconazole, posaconazole and itraconazole) were separated by Lux i-Cellulose 5 (Cellulose

3,5-dichlorophenylcarbamate) and one experimental amylose based chiral column (amylose 3,5-dimethylphenylcarbamate) with the dimension 4.6x250 mm. The mobile phase flow rate was 1 mL/min and the temperatures of the columns were kept at 25°C. Polar organic mobile phases offer certain advantages for separation of enantiomers such as short analysis time, high plate numbers and favorable signal to noise ratio. Used chiral columns offer good stability in pure polar organic solvents as well as wider variety of mobile phases. Finally, this study demonstrated the chiral columns based on cellulose 3,5-dichlorophenylcarbamate and amylose 3,5-dimethylphenylcarbamate covalently attached to the surface of silica particles can effectively separate the chiral imidazole and triazole derivatives by using polar organic mobile phases.

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