CHARACTERIZATION OF CYCLODEXTRINS COMPLEXES WITH POORLY SOLUBLE DRUGS IN SOLUTION AND SOLID STATE

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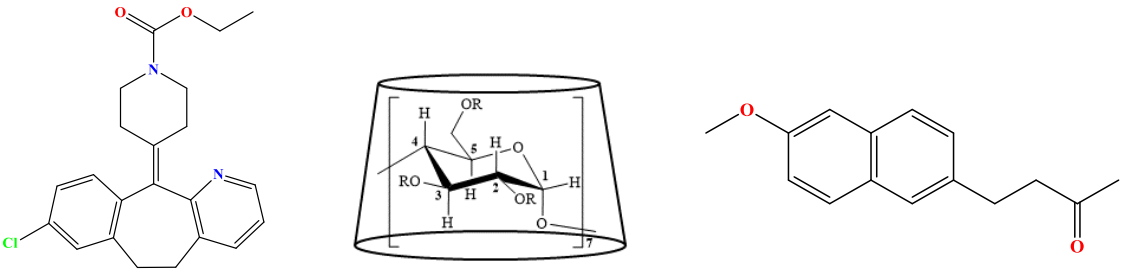
The solubility of poorly soluble drugs can be improved by complexation with β-cyclodextrin and its derivatives. The drug-cyclodextrin complexes in the solution and in the solid state are usually characterized by different methods, including UV-Vis, fluorescence, MS, NMR, DSC, IR etc.[1,2] The complexation of loratadine (LOR) and nabumetone (NAB) complexes with β-cyclodextrins (β-CD) and its derivatives (hydroxypropyl β-CD (HP-β-CD), randomly methylated β-CD (RM-β-CD) and sulfobutylether β-CD sodium salt (SBE-β-CD)) was studied by means of an integrated approach comprising ITC, MS, NMR spectroscopy, DSC, PXRD, ATR-FTIR, and computational methods.[3-5] The formation of inclusion complexes was confirmed both in solid state and in the solution, resulting with improved solubility of abovementioned poorly soluble drugs. The stoichiometry, mode of binding, and thermodynamic parameters for complexes were determined.



Loratadine β-cyclodextrins Nabumetone

Figure 1. Structures of loratadine, nabumetone and β-cyclodextrins

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