

## SUMMARY

Over the last two decades, high-performance liquid chromatography (HPLC) has become one of the most common techniques in chiral separations and has been successfully employed for determination of the optical purity of newly synthesized organic compounds.

Binaphthyl derivatives have been extensively used to control many asymmetric processes and have demonstrated outstanding chiral discrimination properties, due to their unique properties derived from their rigidity and spatial arrangement. Most of 1,1'-binaphthyl molecules are C<sub>2</sub> symmetric with two identical naphthyl units often substituted in the 2,2'-positions. Chirality of these compounds is caused by restricted rotation of atoms or groups of atoms around the single bond on the binaphthyl skeleton.

Cyclodextrins (CDs) and polysaccharides are natural oligomers and polymers, respectively, their basic constituents are glucose units. CDs and polysaccharides and their derivatives have been successfully used as chiral stationary phases (CSPs) in HPLC for enantioselective separation of a wide range of structurally different compounds. Among CSPs based on polysaccharide derivatives, cellulose tris(3,5-dimethylphenylcarbamate) ones exhibit a very good resolution capability. Besides natural polymeric chiral selectors, purely synthetic polymers can provide comparable separation possibilities. Three new synthetic polymeric CSPs based on trans-1,2-diamino-cyclohexane (P-CAP), trans-1,2-diphenylethylenediamine (P-CAP-DP) and trans-9,10-dihydro-9,10-ethanoanthracene-(11S,12S)-11,12-dicarboxylic acid (DEABV) have been developed. The advantages of all these CSPs are wide range of mobile phase compositions compatible with them, high sample-loading capacity and therefore, possibility of semipreparative or preparative applications.

This work is aimed to study the retention and enantioseparation behavior of 2,2'-disubstituted and 2,3,2'-trisubstituted 1,1'-binaphthyls and 3,8'-disubstituted 1,2'-binaphthyls on three different types of chiral stationary phases based on: (i) -cyclodextrin, (ii) cellulose tris(3,5-dimethylphenylcarbamate) and (iii) three synthetic polymer CSPs mentioned above, under various experimental conditions.