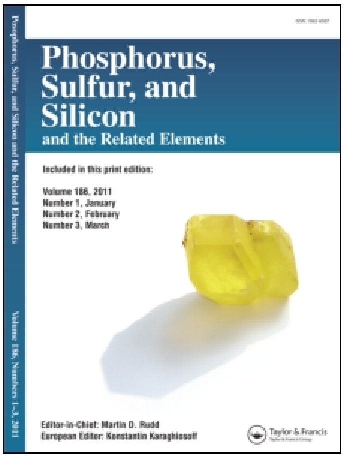

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Optically Active Phenyl-t-Butylphosphinothioic Acid as a Useful CSA for the Enantiomeric Excess Determination of Alcohols, Aminoalcohols and Related Compounds

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OPTICALLY ACTIVE PHENYL-t-BUTYLPHOSPHINOTHIOIC ACID AS A USEFUL CSA FOR THE ENANTIOMERIC EXCESS DETERMINATION OF ALCOHOLS, AMINOALCOHOLS AND RELATED COMPOUNDS

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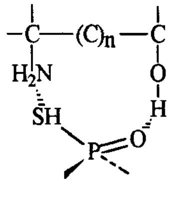
There are rather few methods for determination of the enantiomeric excess of chiral alcohols, amines, thiols and related compounds.[1] All these methods consist in the formation of diastereomeric derivatives of the samples investigated with various chiral derivatizing agents (the CBA method) followed by the quantitative determination of their diastereomer composition using NMR or other techniques.

We have now found that the easily available optically active t-butylphenylphosphinothioic acid forms diastereomeric solvates (the CSA method) with a series of alcohols, amines and related compounds such as aminoalcohols, diols and hydroxyacids.

The values of chemical shift differences of diastereomeric solvates ($\Delta\delta$) are in the range between 0.003 and 0.08 ppm. A particularly large $\Delta\delta$ is observed for the proton attached to the C(OH) group in nor-ephedrine (0.3 ppm). This fact and the lack of nonequivalence for N,N-dimethyl 1-phenylethylamine can be explained in terms of the formation of bidentate-type complexes.



The presented procedure can be a valuable complement of the methods existing up to now to its simplicity and a possibility of a recovery of the substrates.

References

1. D.Parker, <u>Chem.Rev.</u>, **91**, 1441 (1991).