The Absolute Configuration of Amino Alcohols by NMR: Mutual Interaction Between Auxiliaries

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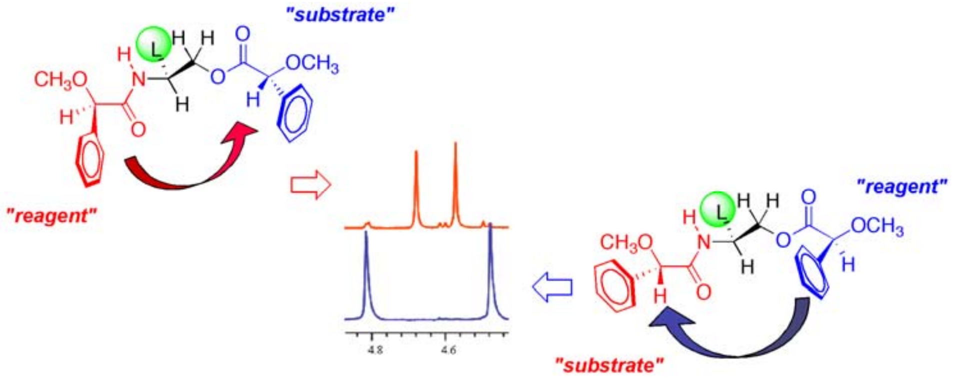
The use of NMR for the determination of the absolute configuration of organic compounds in solution by derivatization with auxiliary reagents, is well established[1] for compounds having one derivatizable group (alcohols, amines, carboxylic acids, cyanohydrins, thiols) or even two and three groups, such as diols, triols, and some amino alcohols.[2] In general, the method consists on the derivatization of the chiral substrate (unknown stereochemistry) with the two enantiomers of a chiral derivatizing agent [CDA, i.e. MPA, 9-AMA, 2-NTBA…] followed by comparison of the NMR spectra of the two resulting diastereomeric derivatives to determine the signs of the $\Delta\delta^{RS}$ parameters on the L_1/L_2 substituents of the substrate, which allows inferring the absolute configuration.

In this communication, we present theoretical and experimental evidence showing that the absolute configuration of *secondary/primary* and *primary/secondary* 1,2-amino alcohols, can be determined by comparison of the ^{1}H-NMR chemical shifts of the auxiliary OMe or CαH groups at the corresponding bis-(*R*) and bis-(*S*)-MPA derivatives.[3] This is the first NMR method that allows the assignment of absolute configuration without resorting to the shifts of hydrogens placed at the substrate and is based on the cross anisotropic interactions between auxiliaries.



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