RECENT STUDIES ON THE SYNTHESIS POLYHYDROXYLATED CYCLIC β-AMINO ACIDS.

Estévez Reino, A. M.,[1] Gil Fortes, A. B.,[2] Estévez Cabanas, J. C.,[1] Estévez Cabanas, R. J.*,[1]

[1] Departamento de Química Orgánica (Facultade de Química) and Centro Singular de Investigación en Química Biológica y Materiales Moleculares, Campus Vida, Universidade de Santiago de Compostela, 15782 Santiago de Compostela, SPAIN.
[2] Departamento de Química, Campus de Gualtar, Universidade do Minho, 4710 – 057 Braga, PORTUGAL.
E-mail: ramon.estevez@usc.es

Abstract

In the field of carbohydrate mimetics, particular attention has been devoted to the design and development of hybrid molecules, including sugar amino acids (SAA), a class of hybrid carbohydrate derivatives bearing an amino and a carboxylic acid functionalities, which can be classified according to the position of the amino acid moiety on the cyclic polyol.[1]

Carbasugars are another family of synthetic and naturally occurring carbohydrate mimics that are attracting great attention among chemists and biochemists.[2] They are polyhydroxylated five or six membered carbocyclic structures topologically similar to natural sugars, particularly in the arrangement of their hydroxy groups, but they have the ring oxygen replaced by a methylene group. Because of their lack of an easily hydrolyzable glycosidic function, these sugar derivatives are much more stable towards hydrolysis.

Carbo and heterocyclic β–amino acids are compounds of great current interest in drug dessign and in material sciences, because their incorporation into peptides usually provides conformationally stabilized peptidomimetics.[3] Particularly interesting are polyhydroxylated cabo- and heterocyclic β-amino acids. Their rich functionality makes them useful scaffolds for combinatorial chemistry, specially for the access to a variety of lipophylic or hydrophylic peptides, by protection or unprotection of their hydroxy substituents. In addition, they can bear pharmacophoric groups with well defined spatial orientations, a property that can facilitate their interaction with biological receptors, togheter with the development of novel materials and as peptidic catalysts.

We will present our recent studies on the synthesis of five and six membered polyhydroxylated carbo- and heterocyclic β-amino acids.[4]

References.

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