

Synthesis of glycoconjugates containing a 1,2,3-triazole unit

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Abstract:

The preparation of several alkynyl esters, derived from amino acids, coumarins and an alkynyl derivative of acetylated D-glucose is described. Eight new glycoconjugates containing the 1,2,3-triazole unit were obtained, by a click approach from the above referred alkynyl derivatives with tetracetyl- β -D-glucosylazide, prepared *in situ* from α -acetobromoglucose.

Keywords: glycoconjugates, click chemistry, triazole, alkynyl esters

Introduction

The glycoconjugates have an enormous potential in drug design¹. Between them, glycopeptides are particularly important as they combine the structural features of amino acids and carbohydrates in the same molecule. Glycoconjugates containing the 1,2,3-triazole unit find application in medicinal chemistry, particularly in those cases where this unit acts as a bridge between an amino acid/peptide and the sugar moiety.²

In this work the synthesis of several glycoconjugates containing the 1,2,3-triazole unit as a bridge between a sugar (D-glucose) moiety and an amino acid or heteroaromatic unit is described. The 1,2,3-triazole unit was formed by an azide-alkyne 1,3-dipolar cycloaddition, catalysed by a Cu(I) species, a chemical process usually known as click chemistry.^{3,4} The azido component was prepared *in situ* from α -acetobromoglucose.^{4,5}

Conclusions

Glycoconjugates containing the 1,2,3-triazole unit were obtained by an azide-alkyne 1,3-dipolar cycloaddition, catalysed by Cu(I). The azide component, glucosylazide, was obtained *in situ* from α -acetobromoglucose and the alkyne components were prepared by reaction of propargyl bromide with *N*-protected glycine, tyrosine and phenylalanine,

7-hydroxycoumarin and 7-hydroxy-4-methylcoumarin with high yields. The final glyconjugates were isolated with a wide range of yields, varying from low, 14% to as high as 80%.

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