COMPARISON OF AZA-PEPTIDE AND PEPTIDE SYNTHESIS

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Biologically active peptides could be ideal drug candidates due to their known outstanding specificity against various target sites and biocompatibility. However, applicability of these compounds is generally limited by their rapid degradation under physiological conditions [1]. To increase peptide stability, the aza-peptides are used. These are peptide analogues in which the C_α of one or more amino acid residues has been substituted by a nitrogen (Fig1.)[2].

I II

Fig1. Comparison of the structure of peptide (I) and aza-peptide (II).

In this study the time-course of aza-peptide formation was compared with kinetics of synthesis of the conventional peptide bond, by using two activators for amino acid activation in standard SPPS.

The influence of two activators was very similar in both cases, finally practically complete acylation of the resin-linked peptide was reached. However, the half-life of the reaction of aza-peptide formation was approximately 30 times longer than that for peptide synthesis.

The results demonstrate that synthesis of an aza-peptide bond is a slow process if compared with the synthesis of a common peptide bond and therefore the conventional SPPS protocol cannot be applied for aza-peptide synthesis without significant changes.

References

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