

The unexpected racemization and hydrogen-deuterium exchange of the hydrogen at the α -carbon of proline analogs containing the 5-azoniaspiro[4.4]nonyl-group.

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Streszczenie

Recently, we developed a novel non-fragmenting quaternary ammonium ionization tag, for mass spectrometric sensitive sequencing of peptides, based on the N-spiro proline residue (5-azoniaspiro[4.4.]nonyl-carbonyl). Herein we present an unexpected racemization and the hydrogen-deuterium exchange (HDX) at the α -C atom of the proline derivative at basic aqueous conditions (1% water solution of triethylamine). The deuterium atom, substituted for the α -C atom, does not undergo back exchange at acidic aqueous conditions what makes the deuterated isotopologue a promising stable isotope-coded internal standard for quantitative analysis by mass spectrometry. The applicability of the prepared isotopologues of the quaternary ammonium salts labeled peptides for quantification experiments using isotopic dilution method was also examined.

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