

Synthesis and evaluation of dihydro-[1,2,4]triazolo[4,3-a]pyridin-2-ium carboxylates as fixed charge fluorescent derivatization reagents for MEKC and MS proteomic analyses.

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Streszczenie

Proteinogenic amino acids were derivatized via coupling reactions with *N*-hydroxysuccinimide esters of *Safirinium* dyes. The obtained compounds were fully characterized by ^1H and ^{13}C NMR, IR, and ESI-MS spectral techniques. Elemental analysis, as well as the crystal structure analysis of exemplary compounds, were performed. The absorption and fluorescent properties of the obtained derivatives have been systematically investigated. The optical properties and very good water solubility allowed for the development of a simple method for the determination of exemplary amino acids by means of micellar electrokinetic chromatography. Moreover, a new class of fluorescent peptide building blocks comprising a spiro-conjugated *Safirinium*-proline system was obtained. Due to the presence of a permanent positive charge, *Safirinium*-amino acid derivatives are potential candidates for signal enhancers in MS proteomic analysis. The applicability of the examined ionization tags in signal enhancement and peptide sequencing was proved. The obtained results provide an experimental basis for the development of a new approach for trace amino acids, peptides, and proteins detection by means of absorption, fluorescence, and mass spectrometry.

Słowa kluczowe

Amino acids, crystal structure, fluorescent dyes, Ionization tags, Micellar electrokinetic chromatography, Peptides

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