OH P 10

Optimizacija metode sinteze etilen-diamin-monosirćetne kiseline, H-EDMA

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U ovom radu je optimizirana metoda sinteze etilen-diamin-monosirćetne kiseline (H-EDMA). Literaturni podaci sinteze H-EDMAxHCl, nisu bili reproducibilni u značajnom prinosu te se probalo sa više metoda dobijanja željenog proizvoda.
U više pokušaja modifikacije postupka sinteze (produžena sinteza u dihlormetanu, bez prisustva rastvarača) nastajao je željeni proizvod u izuzetno niskom prinosu i/ili paralelno nastajanje neželjenih višestruko supstituisanih etilen-diaminskih derivata (etilendiamin-disirćetna i trisirćetna kiselina) što je pokušano riješiti zaštitom jedne od dvije amino grupe Boc-zaštitnom grupom, no rezultat je ponovo bio nerazdvojiva smješa proizvoda.
Na osnovu iskustava stečenih prethodnim pokušajima sinteze H-EDMA, dizajnirana je modifikovana metoda sinteze u organskom mediju na sobnoj temperaturi, pri višku etilendiamina i uz sporo dodavanje monohlorsirćetne kiseline koja je rezultirala prinosom od 55 % čistog željenog proizvoda. Na taj način smo dobili H-EDMA kraćom i efikasnijom i ekonomičnijom metodom.

Optimization of the method of synthesis of ethylene-diamine monoacetic acid, H-EDMA

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In this paper, the synthesis of ethylene diamine monoacetic acid (H-EDMA) is optimized. Literary data were not reproducible in significant yield so we tried this synthesis with several methods for the purpose of obtaining of the wanted product.
In several attempts to modify the synthesis process (extended synthesis time in dichloromethane, reacting without the presence of a solvent), the desired product was produced in an extremely low yield and / or several unwanted, multiply substituted ethylene diamine derivatives were formed in the same reaction mixture.
We tried to solve this problem by protecting one of the two amino groups with the Boc-protecting group, but the result was a mixture of products that can not be separated.
Based on the experience gained from previous attempts in the synthesis of H-EDMA, a modified synthetic method in an organic medium at room temperature was developed, with an excess of ethylenediamine, followed by slow addition of monochloroacetic acid which resulted in a yield of 55 % pure desired product.Thus, in this work, we got H-EDMA by shorter, more efficient and more economical method.

This work was derived from the project of bilateral collaboration of MNE and Croatia.