

REACTIVITY OF N-[(2-OXOINDOLIN-3-YLIDENE)-2-OXIACETYL]AMINOACIDS ETHYL ESTERS

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In the study of the pharmacological activity of N-[(2-oxoindolin-3-ylidene)-2-oxiacetyl]aminoacids and their esters, synthesized at the Department of Analytical Chemistry, National University of Pharmacy it was found that a wide spectrum of biological effects is characteristic for them.

The aim of this work was to study the reactivity of ethyl esters of N-[(2-oxoindolin-3-ylidene)-2-oxiacetyl]aminoacids to optimize the conditions of their synthesis and develop mathematical models of interrelation "structure-biological activity" enabling targeted searches of compounds with desired high level of biological effects.

Acid - base balance was studied by potentiometric titration. The titrant used was a standard 0.05 M aqueous solution of potassium hydroxide, free from carbon dioxide. Concentration of solutions titrated – 0.005 M at the point of half neutralization. Potentiometric titration was performed on ionomer EV - 74 using a glass (ЭСИ 43-074) indicator electrode. The reference electrode was a silver chloride electrode (ЭПБ-1). The experiment was carried out at 25°C with a threefold repetition. The accuracy of the results was assessed by means of mathematical statistics of small samples (confidence probability 0.95). Mixed solvent was received from bidistillate free from carbon dioxide and 1,4 - dioxane.

CONCLUSIONS:

1. By studying acid-base balance the reactivity of ethyl esters of N-[(2-oxoindolin-3-ylidene)-2-oxiacetyl]aminoacids was investigated. It was found that they have the function of weak monobasic acids. An equation of ionization by enol hydroxyl was worked out.
2. Measuring of 9 ethyl esters N-[(2-oxoindolin-3-ylidene)-2-oxiacetyl] aminoacids ionization constant has shown that the extend of polymethylene chain weakens ionization.
3. By Hammett equation a quantitative assessment of the impact of methylene units on the aminoacid fragment of molecule was carried out and a low sensitivity of the reaction center to extend of polymethylene chain was identified.