PS

SUPRAMOLECULAR COMPLEX OF HYDRAZIDES O- AND P-HYDROXYBENZOIC ACIDS WITH β-CYCLODEXTRIN

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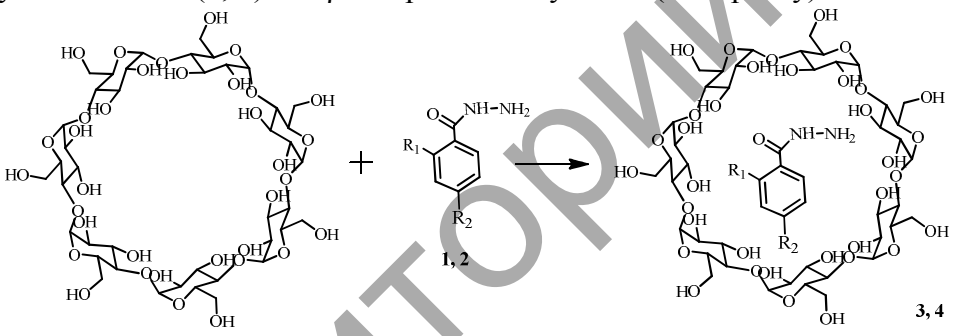
Hydrazides are used in medical practice as anti-tuberculosis, anti-microbial, antiviral, anti-tumor, psychotropic and other substances [1]. However, some of them have low solubility in water, in particular p-hydroxybenzoic acid hydrazide. Currently, various ways of increasing the solubility of drugs in water have been developed and are being used: the use of special excipients, including the inclusion of drugs in the cyclodextrin complex [2].

Cyclodextrins (CD) are cyclic oligosaccharides that have a hydrophobic internal cavity and a hydrophilic outer shell [3]. Hydrophobic molecules are able to integrate into the internal cavity of the CD, forming inclusion complexes of the type "host - guest" [4]. The formation of an inclusion complex can increase the stability of low-molecular substances that are sensitive to the action of light and oxygen, increase their solubility in water, bioavailability, and also reduce toxicity. Due to this, CSD is widely used in food, cosmetic, pharmaceutical industry, in the production of dyes, in analytical chemistry, in the elimination of environmental pollution by toxicants, etc. [5].

To obtain new derivatives of the inclusion complex (3, 4), hydrazides of o- and p-hydroxybenzoic acids (1, 2) and β-CD produced by Fluka (99% purity) were used.



R_1=OH, R_2=H (3); R_1=H, R_2=OH (4)

The composition and structure of the compounds was confirmed by IR, NMR 1H- and 13C-spectroscopy, as well as methods of two-dimensional NMR spectroscopy COZY (1H-1H) and HMQC (1H-13C), which allows to establish the spin-spin interactions of homonuclear and heteronuclear nature.

The resulting products form a mixture capable of dissolving in water or forming stable aqueous dispersions. The preparation of water-soluble complexes of these compounds should lead to an increase in their biological availability, which accordingly will significantly reduce their therapeutic concentration.

References

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