Supramolecular complexes of inclusion of imidazole derivatives

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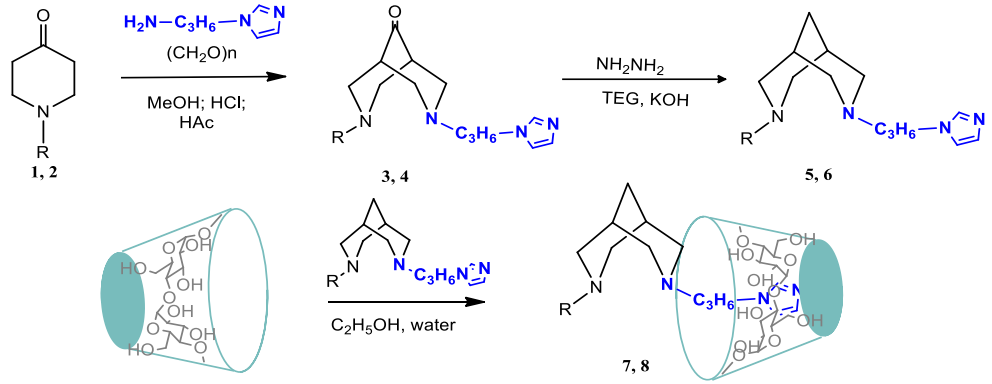
The high biological activity of bispidine derivatives has been demonstrated [1]. However, the bioavailability of bispidines, as in other lipophilic compounds, is limited due to its low solubility in water. To solve it, various methods of encapsulating bioactive systems with cyclodextrins with the formation of supramolecular complexes «guest-host» are used. Cyclodextrins are non-toxic glucose oligopolymers that help increase the solubility of organic compounds with poor solubility in water, can mask unpleasant odors and are widely used in the food industry, as well as being studied in the field of drug delivery [2].

In this study, imidazole-containing 3,7-diazabicyclo[3.3.1]nonan-9-ones was obtained during Mannich condensation of N-substituted 4-ketopiperidines with paraform and 1-(3-imidazolylpropyl)amine, followed by reduction under the conditions of the Kizhner-Wolf reaction, and imidazole-bispidines were obtained. The encapsulation of the obtained imidazole derivatives with β-cyclodextrin into target pharmacologically acceptable supramolecular systems was carried out.



The structure of the substances is confirmed by IR and NMR spectroscopy data.

Literature:

1. Malmakova A.Ye., Yu V.K., Praliyev K.D., Kaldybayeva A.B., Amirkulova M.K. Synthesis, structure, and biological activity of novel bispidine derivatives // International Journal of Applied Pharmaceutics. -2021. Vol. 13, Special Issue 1. – P. 69-74. https://doi.org/10.22159/ijap.2021.v13s1.Y1013

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