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ХИМЭКСПЕРТ



**Kazan
Federal**

UNIVERSITY

3rd Russian Conference on Medicinal Chemistry

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Abstract Book

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The book contains abstracts of all the scientific sessions of the 3rd Russian Conference on Medicinal Chemistry (Kazan, September 28 – October 03, 2017), including plenary lectures, keynote presentations, oral and poster presentations, round-table talks, and correspondent presentations. It also includes the information from industrial partners of the conference, and the author index.

The 3rd Russian Conference on Medicinal Chemistry is held under the auspices of the European Federation for Medicinal Chemistry.

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CONTENT

Plenary Lectures	7
Young scientists' symposium «Innovative developments of young scientists in the field of drug design»	13
Special session dedicated to the memory of Acad. Nikolay Zefirov	33
Scientific session «Target-directed design of novel drugs»	39
Scientific session «Novel synthetic and technological approaches in medicinal chemistry»	49
Scientific session «Scientific and methodological aspects of development of novel drugs»	57
Scientific session «Bioinorganic medicinal chemistry»	67
Scientific session «Natural-product-based drug design»	79
Scientific session «Computational drug design»	89
Poster session №1	99
Poster session №2	137
Poster session №3	177
Correspondent presentations	213
Round table materials	263
Information from the Industrial Partners	268
Author Index	276
Information from the Publishing Partners	280

STRUCTURE AND ANTIOXIDANT ACTIVITY OF MAILLARD REACTION PRODUCTS IN *D*-LACTOSE – *P*-AMINOBENZOIC ACID SYSTEMS

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Amino-carbonyl interactions in carbohydrate – amine systems, known as Maillard reaction, represent the complex multistage process leading to formation a wide range of products, which show antioxidative, antimicrobial, antimutagenic and other physiologically important properties [1]. The majority of studied carbohydrate-amine systems include aliphatic amines and amino acids whereas properties of reaction products with arylaminocomponents as reagents are almost not investigated. In this research we presented results of sugar-amine reactions studying in *D*-lactose with *p*-aminobenzoic acid systems in subacid aqueous-ethanolic media in the presence of catalytic quantities of copper (II) ions, and antioxidative properties of the products are also valuated. The course of reactions was controlled by the TLC-method and UV-Vis spectrophotometry, fractionation of final products was carried out by dialysis, and the structure was confirmed based on FTIR- and mass spectroscopy data, the antioxidant activity was estimated on linoleic acid oxidation inhibition degree by iron-thiocyanate method in comparison with α -tocopherol. Due to results of researches presented the dependence of final product's structure on melanoidin formation duration has been established, in particular within the first three hours of synthesis the heteroaromatic nitrogen-containing substances are formed, including essential quantity of structural-linked carbohydrate rings which are transformed to conjugated polymeric heterocyclic structures, in particular substituted furans and furanones, forming pseudomelanoidinic component of browning product's structure. Studying of antioxidant activity has shown presence of the reducing properties both of early and of late isolated products that it is probably explained by the considerable electronic redundancy of the last, at the same time the maximum inhibition degree of oxidation, close to standard, characterizes the non-dialyzable high molecular weight structures.

References

- [1] F.L. Gu, J.M. Kim, S. Abbas, X.M. Zhang, Food Chem. 2010, 120, 505-511