



ТЕЗИСЫ ДОКЛАДОВ

20-24 сентября 2021 г.
Иваново, Россия

КЛАСТЕР КОНФЕРЕНЦИЙ 2021

**XIV МЕЖДУНАРОДНАЯ НАУЧНАЯ КОНФЕРЕНЦИЯ
«ПРОБЛЕМЫ СОЛЬВАТАЦИИ И
КОМПЛЕКСООБРАЗОВАНИЯ В РАСТВОРАХ»**

**XI МЕЖДУНАРОДНАЯ НАУЧНАЯ КОНФЕРЕНЦИЯ
«КИНЕТИКА И МЕХАНИЗМ КРИСТАЛЛИЗАЦИИ.
КРИСТАЛЛИЗАЦИЯ И МАТЕРИАЛЫ НОВОГО
ПОКОЛЕНИЯ»**

**VI МЕЖДУНАРОДНАЯ НАУЧНАЯ КОНФЕРЕНЦИЯ
ПО ХИМИИ И ХИМИЧЕСКОЙ ТЕХНОЛОГИИ**

**XIII ВСЕРОССИЙСКАЯ ШКОЛА-КОНФЕРЕНЦИЯ
МОЛОДЫХ УЧЕНЫХ «ТЕОРЕТИЧЕСКАЯ И
ЭКСПЕРИМЕНТАЛЬНАЯ ХИМИЯ ЖИДКОФАЗНЫХ
СИСТЕМ» (КРЕСТОВСКИЕ ЧТЕНИЯ)**

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SPECIFICITY OF ANIONS OF ALKYLIMIDAZOLIUM IONIC LIQUIDS IN AGGREGATION AND PARTITION BEHAVIOUR OF AQUEOUS OR AQUEOUS-SALT SOLUTIONS

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Ionic liquids (ILs), which comprise organic salts with melting temperatures below 100°C, have been intensely developed since the 1990s. Firstly, ILs were considered as alternative “green” solvents. They differ from common molecular solvents in their ionic nature and structural peculiarities. For many years, the problem of their toxicity has been stayed in a focus of debates. This problem can be solved by varying their chemical structure. Among the structurally modified ILs, the amino acid ILs (AAILs) attract much attention due to their low toxicity in comparison with conventional ILs [1]. The ILs composed of imidazolium cations and amino acid anions have been first synthesized by Fukumoto et al. [2]. These AAILs are now considered as a novel class of chiral ILs with the unique acid-base behavior, biological significance, and potential applications in chemical synthesis, homogeneous catalysis, chiral solvents, electrochemistry and separation processes [3]. In particular, aqueous biphasic systems containing water-miscible ILs/AAILs and kosmotropic salt are considered for liquid-liquid extraction of bioactive materials.

Surface-active ionic liquids (SAILs) which are capable of self-aggregation in solution can be used as environmentally friendly surfactants designed for task-specific purposes with a simple change in the structure of their anions/cations.

In terms of hydrophobicity and chaotropic nature, we discuss the effects of cation/anion of 1-alkyl-3-methylimidazolium ILs [C_nmim]X (n - number of carbon atoms in the alkyl chain, anions X = Cl, Br, L-leucinate, L-valinate, L-lysinate etc.) on their aggregation characteristics (critical micelle concentration, cmc, degree of counterion binding) in water as well as on the phase behavior (binodal, tie-lines [4]) of the aqueous biphasic systems with kosmotropic salt. For such aqueous biphasic systems, we systematically study the partitioning of L-tryptophan, taken as a model solute. In case of halogen anions of ILs, a substantial specific effect is only observed when the salting-out effect of inorganic salt is most pronounced.

Acknowledgements. Scientific research was partly performed at the Research park of St. Petersburg State University (Center for Chemical Analysis and Materials Research, Center for Magnetic Resonance, Center for Thermogravimetric and Calorimetric Research).

This work was supported by the Russian Science Foundation [grant number 20-13-00038].

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[1-4].