

## PL-5

**POLYOLATES OF BIOGENIC ELEMENTS AND THEIR MODIFIED DERIVATIVES IN SOL–GEL SYNTHESIS OF DRUGS FOR TOPICAL APPLICATION IN MEDICINE AND VETERINARY****T. G. Khonina,<sup>1,2</sup> V. V. Permikin,<sup>1</sup> E. V. Shadrina,<sup>1</sup> E. Yu. Nikitina<sup>1</sup> O. N. Chupakhin<sup>1,3</sup>**<sup>1</sup>*Ya. Postovsky Institute of Organic Synthesis UB RAS,**20/22 S. Kovalevskoy / Akademicheskaya St, Yekaterinburg, 620990, Russia;*<sup>2</sup>*Ural State Agrarian University, 42 Karl Liebknecht St, Yekaterinburg, 620075, Russia;*<sup>3</sup>*Ural Federal University of the first President of Russia B.N. Yeltsin, 19 Mira St,**Yekaterinburg, 620002, Russia. E-mail: [khonina@ios.uran.ru](mailto:khonina@ios.uran.ru)*

**Abstract.** We have synthesized by sol–gel method fairly extensive series of bioactive element-containing hydrogels based on polyolates of biogenic elements (silicon, zinc, boron, iron) and their modified derivatives<sup>1-5</sup>. Element-containing polyolates which are biocompatible and bioactive precursors in sol-gel synthesis have no negative effect on the biomacromolecules unlike commonly used alkoxy precursors, such as tetraethoxysilane Si(OEt)<sub>4</sub>. Moreover, the sol–gel processing proceeds under mild conditions without using additional homogenizing solvent or catalyst. General regularities and features of gelation process were established for various element-containing precursors and also in comparison with alkoxy precursors.

These hydrogels are non-toxic, possess a broad spectrum of pharmacological activity (reparative, regenerating, transcutaneous, immunotropic, and antimicrobial). They can be used in medical and veterinary practice both as independent medicines for topical application and as drug delivery systems in pharmaceutical formulations.

The pharmaceutical compositions containing active medicinal additives or biologically active substances for treatment diseases of skin, soft and born tissues, and mucous membranes of various etiology will be presented in the report.

**References**

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