Subsection: Physical Chemistry.

Registration Code of Publication: 14-38-5-23

Publication is available for discussion in the framework of the on-line Internet conference "Butlerov readings". http://butlerov.com/readings/

Contributed: July 05, 2014.

## Supramolecular reorganization in biopolymers during the adsorptive process

© Yuriy B. Grunin, 1\* Leonid Yu. Grunin, 1 Vladimir I. Talantcev, 1+ Ekaterina A. Nikol'skaya,<sup>2</sup> and Dar'ya S. Masas<sup>1</sup>

<sup>1</sup> Volga State Technology University. Lenin Sq., 3. Yoshkar-Ola, 424000. Rissia. Phone: +7 (8362) 68-68-64. E-mail: GruninYB@volgatech.net <sup>2</sup> University of Eastern Finland. Yliopistonranta 1, P.O. Box 1627, FI-70211 Kuopio, Finland.

\*Supervising author; \*Corresponding author

**Keywords**: biosynthesis, cellulose, microfibrila, hydrogen bond, nuclear magnetic resonance, adsorption of water vapor.

## **Abstract**

The analysis of modern ideas on the structural organization of the cellulose microfibrils is carried out. Based on experimental studies of sorption processes with application of a proton magnetic relaxation the scheme of formation of additional capillary and porous system of cellulose is offered. It is established that at moisture content of cellulose of 8-10% there is a filling of its micropores, being accompanied with the increase of their cross sizes, increase in a specific surface and reduction of crystallinity degree of samples.