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*Programme and the Book of Abstracts*

**NINETEENTH YOUNG RESEARCHERS' CONFERENCE  
MATERIALS SCIENCE AND ENGINEERING**

Belgrade, December 1-3, 2021



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**Obtaining of healthcare textiles based on viscose fabric with improved sorption properties**

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The growing demand for better healthcare is a major factor in moving the healthcare textile market towards neoteric products with upgraded properties. Sorption properties are one of the most important properties of healthcare textiles because they affect the removal of excess exudates. Removing excess exudates is very pertinent since they contain nutrients that increase the risk of bacterial growth. The application of viscose in healthcare textiles production has a long tradition owing to its intrinsic properties of biocompatibility, nontoxicity, and bioabsorbability. But, although the sorption properties of viscose are much better than those for similar materials such as modal and lyocell, these properties are not sufficient in the cases when is needed exceptional high absorbent capacity.

In this study, viscose fabric was modified in two different ways: 2,2,6,6-tetramethylpiperidine-1-oxy radical (TEMPO) oxidation and coating with TEMPO oxidized cellulose nanofibrils (TOCN), in order to improve its sorption properties by introducing hydrophilic carboxyl groups. The sorption properties of unmodified, TEMPO oxidized and TOCN coated viscose fabrics were determined by measurements of time needed for establishing equilibrium state of absorption, absorbent capacity, and contact angle. Compared to unmodified, TEMPO oxidized and TOCN coated viscose fabrics showed improved sorption properties (increased absorption capacity up to 130 mg liquid/g fabric, decreased time needed to reach equilibrium state from 144 s to 24.7 s and contact angle from 81° to 40°) and may find application as healthcare textiles with upgraded removal of excess exudates.

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