**Preparation and antibacterial properties of composite nanostructures from titanium and copper oxides**

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**Abstract.** Composite nanostructures of titanium and copper oxides have been produced on the surface of copper grids by thermal oxidation in combination with sol–gel method. The influence of the oxidation temperature and duration on the structural characteristics of the nanostructured copper oxides thus produced, in the form of CuO nanowire arrays, has been analyzed. X-ray diffraction characterization indicated the presence of crystalline titania in the form of anatase in the composite structures. The CuO/TiO2 structures have been shown to exhibit antibacterial activity under illumination with scattered light and visible light from an artificial light source, ensuring 100% cell death in Escherichia coli and Staphylococcus aureus cultures in 30 and 90 min, respectively.

**Ключевые слова:** titanium oxides, copper oxides, nanowire arrays, antibacterial activity

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