

# Nanocomposites and nanomaterials

## Preparation of Au-glycane nanocomposite for sensor applications

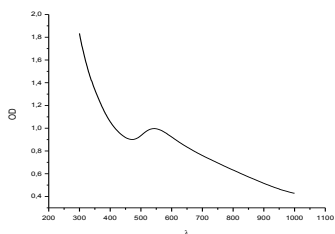
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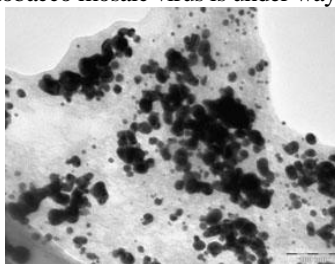
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Mixed nanocomposites combined both organic and inorganic compounds extend our capabilities to form nanostructured architectures of advanced functionality. Such architectures can be used in sensors and systems of medical diagnostics, environmental monitoring etc, in particular, those based on the transducers of local plasmon resonance. In the present work we consider an approach to the formation of the nanocomposite with potent antivirus ability based on the *Ganoderma adspersum* glycane [1] with embedded gold nanoparticles. Au-glycane nanocomposite was obtained by reduction of metal from  $\text{HAuCl}_4$  salt under the base condition where glycane play a role of macromolecular reducer and stabilizer. Shortly, NaOH was added to glycane solution with following addition of Au salt; initially solution was getting purple with further change of color to violet. Absorption spectra of product demonstrated the presence of the wide band with the maximum near 560nm specific for local surface plasmon excitation in gold nanostructures. TEM imaging (Fig.1) showed that Au nanoparticles were embedded in glycan matrix with size dispersed in the range from 5 to 30 nm. The testing of synthesized composite with tobacco mosaic virus is under way.



a



b

Fig.1. Au nanoparticles embedded in glycan matrix: a - absorption spectra of b – TEM image

1. Kovalenko O. G., Polishchuk E. N., Wasser S. P. Glycans of higher basidiomycetes muchroom *Ganoderma adspersum* (Schulzer) Donk: isolation and antyphytoviral activity // Biotechnology. – 2010. - 3, N 5. – P. 83-91.