

Interaction between bionanomaterials based supramolecular structures and Tobacco Mosaic Virus

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One of the problems of the antiviral drugs use is their safe and address transport to the appropriate targets. One of the approaches to the solution of this problem is the forming of the lyposomal supramolecular structures (SMS) based on the antiviral active nanomaterials [1]. Earlier we designed SMS using bionanomaterials, namely, glycans, glycolipids and thiosulfonates and demonstrated their high activity against the Tobacco Mosaic Virus (TMV) [2]. For the verification of the interaction between SMS and TMV the binding of specific antibodies to the virus was used. The reaction was investigated by the surface plasmon resonance method. The investigations were performed with a scanning SPR spectrometer “BioHelper-01” designed in the V.Ye. Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine.

It was demonstrated that the incubation of the untreated virus and the virus, preincubated with above mentioned nanocomposite, with antibodies allows one to state the complexation with the nano-composite changes the binding capabilities of the virus which make it potentially useful as virus inhibitor.

1. *Kovalenko O.G.* Principles and methodology of the creation of agents for sanitation and protection of plants from the viral infections based on bionanomaterials // XIII SMU Congress Yalta, 2013. –P.455.
2. *Vasiliev V.N., Kovalenko O.G., Karpenko E.V.* Application of surface-active rhamnolipids for formation of the supramolecular structures with antiviral activity // “Nanotechnology and Nanomaterials” (NANO-2013). 25 August 1 September 2013, Bukovel. Ukraine. Book Abstr. – 2013. – P. 266.