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Abstract

Liposomal Supramolecular Strustures Based on the Antiviral Active Nanomaterials †

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Liposomal supramolecular strustures (SMS) are widespread in different areas of modern science. Due to their unique, multifaceted, and flexible properties, nanomaterials circumvent many challenges in diverse fields of medicine, including health, diagnosis, and treatment nanoliposomes being one of the most widely used nanoparticles in biomedicine [1]. Liposomes have been considered promising and versatile drug vesicles. Compared with traditional drug delivery systems, liposomes exhibit better properties, including site-targeting, sustained or controlled release, protection of drugs from degradation and clearance, superior therapeutic effects, and lower toxic side effects [2]. All these advantages are important for the development of efficient antiviral drugs which is one of the topical problems in modern virology.

Polysaccharides extracted from mushrooms have received growing attention in biomedical application [3]. They exhibit many biological activities including immune regulation, antioxidant and anti-inflammatory actions, antivirus, antitumor, and so on. Increasing advances in nanotechnology and nanoscience have raised great hopes in the field of biomedicine.

To deliver polysaccharide glucuronoxylomannan (GXM) extracted from the yellow brain mushroom Tremella mesenterica to sites of action, liposomes have been used as specific targeted systems. For the investigation of the impact of GMX containing SMS on the functionality of the tobacco mosaic virus surface plasmon resonance method was used. These have been found to improve the bioavailability of GXM polysaccharide and enhance their pharmacodynamic action.

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