

Studies on Modified Zinc Oxide Nanoparticles as Potential Drug Carrier

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Abstract : The toxicity of bare zinc oxide nanoparticles used as drug carriers may be the result of releasing zinc ions. Thus, zinc oxide nanoparticles modified with galactose were obtained. The process of their formation was conducted in the microwave field. The physicochemical properties of the obtained products were studied. The size and electrokinetic potential were defined by using dynamic light scattering technique. The crystalline properties were assessed by X-ray diffractometry. In order to confirm the formation of the desired products, Fourier-transform infrared spectroscopy was used. The releasing of zinc ions from the prepared products when comparing to the bare oxide was analyzed. It was found out that modification of zinc oxide nanoparticles with galactose limits the releasing of zinc ions which are responsible for the toxic effect of the whole carrier-drug conjugate.

Keywords : nanomaterials, zinc oxide, drug delivery system, toxicity

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