

LETTER TO THE EDITOR

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Comment on “Effect of Loaded Glycyrrhizic Acid on PLGA Nano-particle on Treatment of Allergic Asthma”

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Dear Editor:

We have recently read with great interest the published article in the Iranian Journal of Allergy, Asthma and Immunology by Chen et al. titled: Effect of Loaded Glycyrrhizic Acid on Poly(lactic-co-glycolic acid) (PLGA) Nano-particle on Treatment of Allergic Asthma.¹ Thanks to the authors for sharing their valuable experience in the treatment of allergic asthma with us. Encapsulation of glycyrrhizic acid into PLGA nanoparticles is a great idea to improve its solubility, biodistribution, absorption, and effectiveness. We think that is an efficient drug delivery system, but we'd want to share our few comments on this manuscript:

1. The polydispersity index (PDI) of the fabricated nanoparticles should be measured by the dynamic light scattering (DLS) method. PDI is a basic physicochemical characteristic of nanoparticles that shows their size distribution and homogeneity. A greater PDI value indicates a broader size distribution. On the other hand, the particles with different PDI could have different pharmacokinetic properties in vivo.²

2. It is necessary to determine the entrapment efficiency (%EE) of glycyrrhizic acid using ultracentrifugation followed by ultraviolet spectrophotometry. %EE is the difference between the

drug added amount and the untrapped (free) drug amount divided by the total drug added, giving an idea of what percent of the drug is entrapped in nanoparticles.³

3. The Fourier transform infrared (FT-IR) of the prepared nanoparticle should be characterized by spectroscopy. FT-IR enables the analysis of the chemical composition and the surface adsorption of nanoparticle functional groups. It also confirms the presence of the nanoparticle loads of glycyrrhizic acid.⁴ Therefore, it has been demonstrated that FT-IR spectroscopy is the criterion necessary for confirming the blank-nanocarrier synthesis and drug loading in nanocarriers.⁵ On the other hand, the synthesis nanoparticles were confirmed by FT-IR spectroscopy, which is not presented in this published paper.

4. It is necessary to evaluate the in vitro cytotoxic activity of the glycyrrhizic acid/PLGA nanoparticles before the nanodrug injection into animals and any in vitro studies as well. Cytotoxicity assay is done using different methods like a colorimetric assay known as 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) i. This test determines whether the drug/nanoparticle will cause cell death or damage.⁶

5. The intracellular uptake of glycyrrhizic acid/PLGA nanoparticles should be verified in vitro by flow cytometry. This test determines whether the nanoparticle is capable of cellular internalization and effective for intracellular drug delivery.⁷

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STATEMENT OF ETHICS

This study was letter to the editor.

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CONFLICT OF INTEREST

The authors declare no conflict of interest related to this study.

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