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Development and Biodistribution of Trans-Resveratrol Loaded Chitosan Nanoparticles with Free Amino Groups

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***SUMMARY*. The conventional method for preparing chitosan nanoparticles (CS-NPs) leads to the surface amino groups protonated and unable to link other useful moieties. In this study, we optimized the method of sodium chloride precipitation our lab established before to produce CS-NPs with surface free amino groups. The effects of preparation conditions on the size and encapsulation efficiency were examined. As surface amino groups may exert special effect on the NPs biodistribution, *in vivo* distribution was investigated after intravenous administration to the mice. The optimized CS-NPs were round with the mean diameter of 257 ± 21 nm. Compared with *trans*-resveratrol solution, the CS-NPs had longer circulation time *in vivo*. The *AUC* of CS-NPs in liver was 2.29 fold *AUC* of the solution. This study demonstrates that not only can the unique CS-NPs be modified to obtain active targeting systems, they are also an excellent candidate for liver targeting treatment.**

KEY WORDS: Biodistribution, Chitosan nanoparticles, Free amino groups, Liver, Pharmacokinetics.

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