Synthesis and characterization of gold nanoparticle doped liposome using L-a-phosphatidylcholine for pH sensitive drug delivery system

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Solubility, pH and diffusivity are important in the field of drug delivery systems (DDS) for biomedical applications.

In particular, because active drug molecules are amphiphilic, such physicochemical parameters play a very important role in moving drug molecules to specific sites.

Among the drug delivery systems (DDS), liposome drug carriers perform better than conventional toxic nanoparticle drug carriers for theranostic applications.

AuNP is also considered the most interesting nanomaterial because of its unique optical-electrical properties.

AuNPs have potential applications for medical imaging, drug delivery, tumor diagnosis and treatment.

This study focused on the characterization of AuNP, Lip-DOX, and Lip-DOX@AuNP.

AuNPs were synthesized using HAuCl4 and 1% of trisodium citrate dehydrate .

AuNPs was charaterized via UV-vis, TEM, and FT-IR to ensure that AuNPs were synthesized well.

L-α-Phosphatidylcholine was used to make a phospholipidic double layer, and DOX was added to hydrate to synthesize liposomes via evaporator.

Lip-DOX and Lip-DOX@AuNPs were charaterized via UV-vis and SEM to confirm that the particles synthesized well.