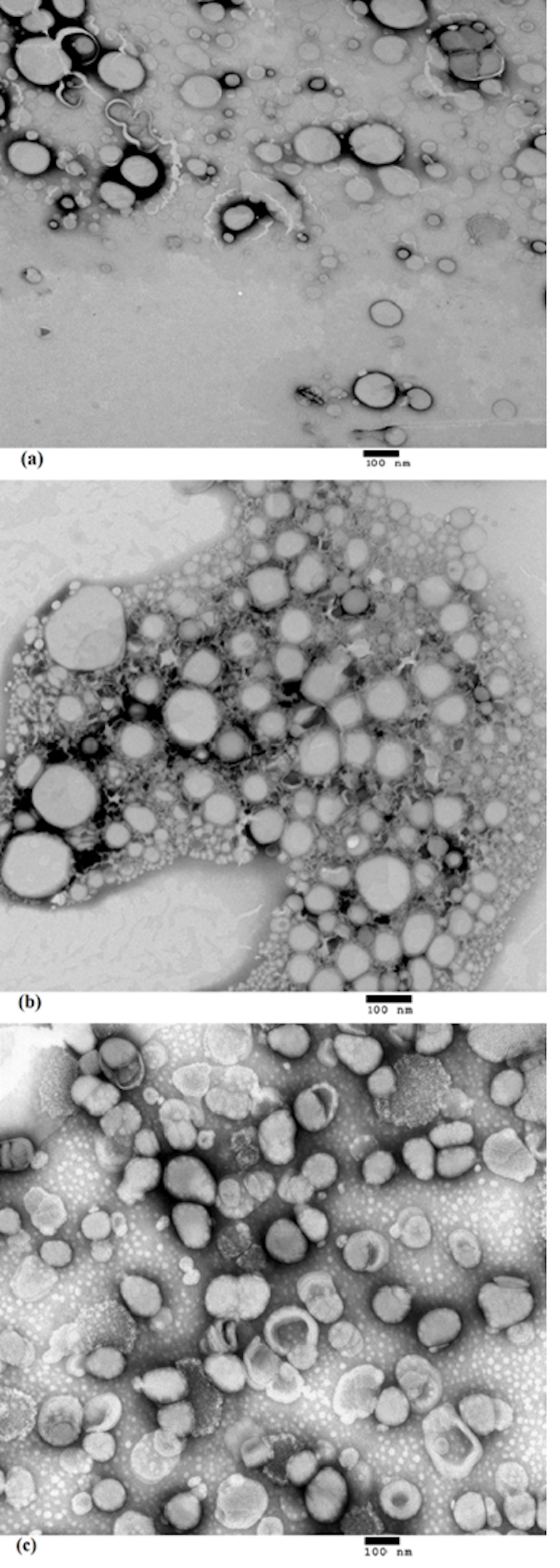
Supplementary material

**Transmission Electron Microscopy (TEM)**

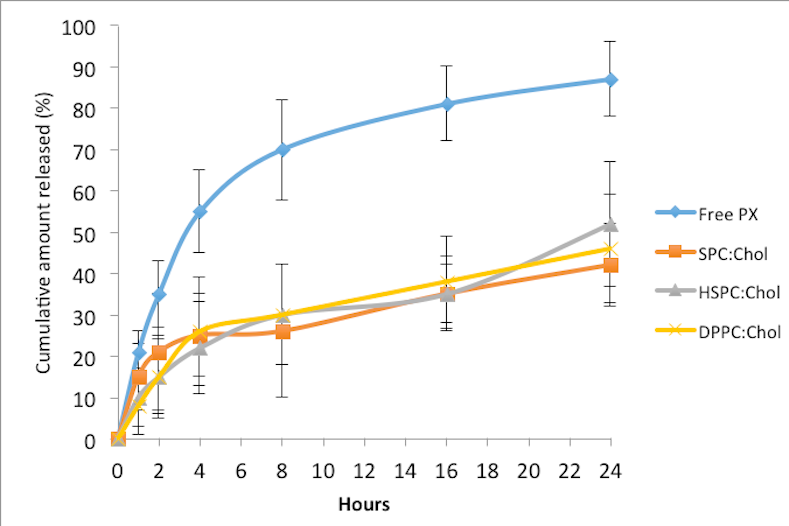
A drop of liposome dispersion was placed on carbon-coated copper grids (400 mesh) (TAAB Laboratories Equipment Ltd., UK), which was negatively stained with 1% phosphotungstic acid (PTA), and then viewed and photographed using TEM (Philips CM 120 Bio-Twin TEM, Philips Electron Optics BV, the Netherlands).



**Figure 1S.TEM of (a) SPC: Chol (1:1) liposomes containing 1 mg/ml paclitaxel (b) HSPC: Chol (1:1) liposomes containing 1 mg/ml paclitaxel and (c) DPPC: Chol (1:1) liposomes containing 1 mg/ml paclitaxel, all after size reduction.**

**In vitro release of PX**

The release of PX from liposomal formulations was investigated using dialysis. Prior to assay, loaded liposomal formulations of 1 mg/ml were filtered through a 0.4 µm sterile syringe filters to remove unloaded paclitaxel. Considering the loading efficiency (Fig 5), volumes of each liposomal formulation containing 0.5 mg of a paclitaxel was placed in a dialysis tube (MWCO 3500) and tightly sealed. For free drug, 0.5 mg PX was dissolved in 1 ml of ethanol:water:tween 80 (50:49.9:0.1%). Then, the dialysis tube was immersed in 50 ml (total volume) release medium (PBS (pH 7.4) containing 0.1% (v/v) Tween 80) and incubated with stirring in for 24 h at 37 oC. Samples (0.2 ml) were taken at time intervals from the release medium for 24 h, and replaced by a similar volume of fresh medium. The concentration of PX was determined by Dionex Ultimate 3000 UHPLC with BetaBasic column 18 particle size 5µm, pore size 150A, 150mm L x 4.6mm I.D. Mobile phase; acetonitrile: water:methanol (55:45:5) at wavelength 227nm, retention time was 5.6 min.

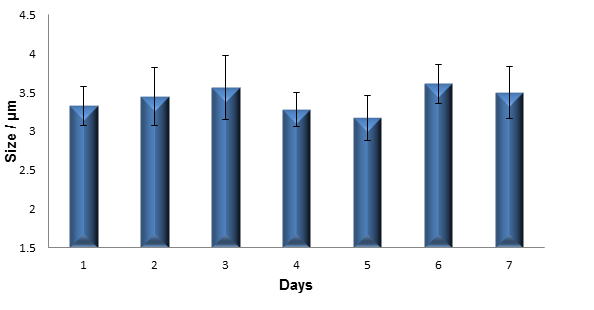


**Figure 2S. The release profiles of PX form liposomes.**

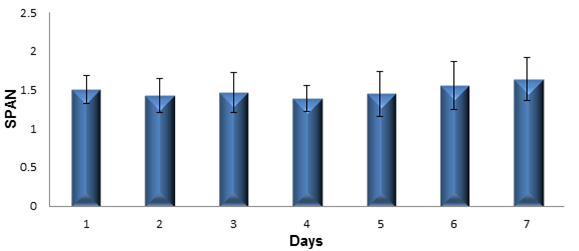
**Preliminary Stability studies**

The lipid phase (phospholipid: Chol, 1:1 mole ratio) (50 mg) was dissolved in absolute ethanol (75 μl) at 70°C (water bath) for 1 min within a 15 ml glass vial. Aqueous (water) phase (10 ml), significantly above the Tm of the lipid was added immediately to avoid lipid phase solidification. Liposomes were generated upon vigorous hand shaking and vortex mixing (Fisons Whirlimixer, UK) for 4 min. Liposomal formulations were then kept for annealing above the Tm of the lipids for 2 h. Then, formulations flushed with nitrogen gas and stored in the fridge (4°C ±1) for 1 week. Samples were taken every day (7 days) for size and zeta potential measurements. The measurements were performed using the Malvern Mastersizer 2000 (Malvern instruments Ltd., UK). This was carried out by addition of 70 ml of deionised water to the cone dispersion unit (Hydro2000 SM, UK) of the instrument. Size and size distribution were presented as the volume median diameter (VMD) (50% undersize) and Span respectively. Span = (90% undersize – 10% undersize) / VMD.

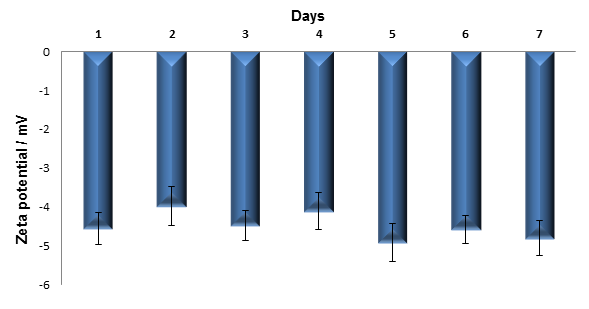
(a)



(b)



(c)



**Figure 3S. The size (a), span (b) and zeta potential (c) of DPPC-liposomal formulations during 7 days of storage at 4 Co ±1.**