Application of solid lipid nanoparticles (SLNs) for separation and preconcentration of atorvastatin

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Background and Aims: This study uses solid lipid nanoparticle (SLNs) for enrichment of the highly lipophilic drug atorvastatin in the aqueous samples as a drug extraction method in biological assay.

Methods: The hydroalcoholic (10%) solution of atorvastatin with drug concentrations of 0.1, 0.25, 0.5 and 1 were prepared and an aliquot of the solid lipid nanoparticles (SLNs) dispersion with 5 ml volume was dialyzed against 50 ml of drug and after 4 hours the drug concentration in dialysor was determined spectrophotometrically at 238 nm. The SLN-treated samples were compared to the control samples prepared as the same except for the addition of (SLNs).

Results: The drug enrichment factor of 1.27 was achieved throughout concentrate range studies.

Conclusions: This early study can serve as a start point for enrichment of atorvastatin in biological samples.

Keywords: Solid lipid nanoparticles; Atorvastatin