



## Determination of Ursolic Acid from Polymeric Nanoparticles using High-Performance Liquid Chromatography Method

Mariana M. de ALMEIDA\*, Nádia A. BOU-CHACRA, Vanessa F. TAVARES,  
André R. BABY, Telma M. KANEKO, & Maria V. R. Velasco

Department of Pharmacy, Faculty of Pharmaceutical Sciences, University of São Paulo,  
Av. Prof. Lineu Prestes, 580, CEP 05508-900, São Paulo, Brazil

**SUMMARY.** The objective of this work was to determine a reversed-phase (RP) high-performance liquid chromatography (HPLC) method for the *in vitro* pharmaceutical characterization of ursolic acid-loaded polymeric nanoparticles. Chromatographic runs were performed on a RP C18 column with a mobile phase comprising metanol:0.1 % (w/v) aqueous phosphoric acid solution in isocratic mode (80:12, v/v) at a flow rate of 1 mL/min. Ursolic Acid was detected at a wavelength of 210 nm. The method was shown to be specific, linear in the range of 10-310  $\mu\text{g/mL}$  ( $R^2 = 0.999$ ), precise at the intra-day and inter-day levels as reflected by the relative standard deviation values (less than 1.0 %), accurate (average recovery 100.17 %). The detection and quantitation limits were 0,000417 and 0,001388  $\mu\text{g/mL}$ , respectively. The method was successfully used to determine the entrapment efficiency of ursolic acid in poly( $\epsilon$ -caprolactone) nanoparticles.

**KEY WORDS:** Nanoparticles, Poly  $\epsilon$ -caprolactone, RP-HPLC, Ursolic acid.

\* Author to whom correspondence should be addressed. *E-Mail:* marimandelli@usp.br