



## Development of a HPLC Method for the Determination of Cyclosporine A From Chitosan Nanoparticles

Ebru BÜYÜKTUNCEL <sup>1\*</sup>, Çiğdem YÜCEL <sup>2</sup>, M. Sinan KAYNAK <sup>3</sup> & Yeşim AKTAŞ <sup>2</sup>

<sup>1</sup> İnönü University, Faculty of Pharmacy, Department of Analytical Chemistry, 44280, Malatya, Turkey

<sup>2</sup> Erciyes University, Faculty of Pharmacy,

Department of Pharmaceutical Technology, 38039, Kayseri, Turkey

<sup>3</sup> İnönü University, Faculty of Pharmacy, Department of Pharmaceutical Technology, 44280, Malatya, Turkey

**SUMMARY.** A reversed-phase high performance liquid chromatographic method was developed for the determination of cyclosporine A from chitosan nanoparticles. Ibuprofen was used as internal standard. The separation was achieved on a Phenomenex C18 column (150 x 4.6mm, 5µm) using 60:20:20, acetonitril:methanol:water mixture at pH 4 as mobile phase under isocratic conditions. The system was operated at 80 °C and the flow rate of mobile phase was adjusted to 1 mL/min. The detection wavelength was set at 205 nm. The calibration curve was linear from 2 to 150 µg/mL with correlation coefficient values from 0.9994 to 0.9997. The lower limit of quantification 2 µg/mL and limit of detection was 0.5 µg/mL. Recovery was 99-101 % and the intra- and inter-day coefficients of variation were 0.94-2.32 and 2.52-3.45 %, respectively depending on the concentration. The method was found to be specific, accurate, precise and sensitive for the determination of cyclosporine A from chitosan based drug delivery systems.

**KEY WORDS:** Chitosan nanoparticles, Cyclosporine A, HPLC.

\* Author to whom correspondence should be addressed. *E-mail:* saliha.buyuktuncel@inonu.edu.tr