



Determination of Sulphate for Measuring Magnesium Sulphate in Pharmaceuticals by Flow Analysis-Fourier Transforms Infrared Spectroscopy

Fernando OVALLES ^{1*}, Máximo GALLIGNANI ², Rebeca RONDÓN ²,
María R BRUNETTO ² & Rafael LUNA ¹

¹ *Analysis & Quality Control Department, Faculty of Pharmacy,
University of Los Andes, Mérida 5101-A, Venezuela*

² *Chemical Department, Faculty of Science, University of Los Andes, Mérida 5101-A, Venezuela*

SUMMARY. The viability of employing flow analysis coupled to Fourier transform infrared spectroscopy (FA-FTIR) as a useful tool for quantitative measuring of magnesium sulphate in pharmaceuticals was explored, developed and validated. The method was based on mid-IR transmittance measurements of the peak-area belonging to the sulphate band around 1110 cm⁻¹ and the use of an external calibration curve. Dynamic range was established over a concentration range from 1 to 50 mg.ml⁻¹, with a limit of detection (3σ) of 0.26 mg.ml⁻¹. The analytical frequency was 12 h⁻¹ with a precision close to the unit (% RSD). The analytical results obtained in commercial formulations by applying the proposed FA-FTIR method were in strong agreement with labelled values and those obtained by a reference titration method at 95% confidence level. Among various advantages offered by the proposed method over conventional ones, simple strategy and clean analytical chemistry must be highlighted.

KEY WORDS: Epsom salt, Flow analysis, Fourier transforms infrared, Magnesium sulphate, Pharmaceutical analysis.

* Author to whom correspondence should be addressed. *E-mail:* ovallesd@ula.ve