



## Simultaneous Determination of the Tuberculostatic Drugs Rifampicin, Isoniazid, and Pyrazinamide by CZE

Roberto PONTAROLO \*, Lorena E. GRAEF, Francinete R. CAMPOS & José D. FONTANA

*Departamento de Farmácia, Universidade Federal do Paraná, UFPR,  
Av. Prefeito Lothário Meissner, 632, Jardim Botânico, 80210-170, Curitiba, PR, Brazil*

**SUMMARY.** A simple and cost-effective method by capillary zone electrophoresis (CZE) was developed and validated for the simultaneous determination of the antituberculosis drugs isoniazid (INH), pyrazinamide (PYR), and rifampicin (RIF) in tablets. A 40 mmol L<sup>-1</sup> sodium tetraborate background electrolyte (BGE) solution (pH 9.0) was found to be suitable for separation of all the analytes. An uncoated fused-silica capillary of 64.5 cm length (effective length 56 cm) was used for chromatography separation. All analytes were completely separated within 5 min at an applied voltage of 20 kV (max. 50  $\mu$ A), and detection was performed at 269.5 nm with an UV detector. The method was validated in terms of linearity, accuracy, precision, and robustness. The linearities of the calibration curves for INH, PYR, and RIF were 40-120  $\mu$ g/mL ( $r^2 = 0.9994$ ), 20-100  $\mu$ g/mL ( $r^2 = 0.9997$ ), and 40-100  $\mu$ g/mL ( $r^2 = 0.9999$ ), respectively. The proposed method was successfully applied for the simultaneous determination of the tuberculostatic drugs RIF, INH, and PYR in tablets. Thus, the proposed CZE method is a potential alternative to the HPLC methods described by the US Pharmacopoeia for the quality control of tuberculostatic drugs.

**KEY WORDS:** Capillary electrophoresis, Isoniazid, Pyrazinamide, Rifampicin, Tuberculosis, Validation.

\* Author to whom correspondence should be addressed. *E-mail:* pontarolo@ufpr.br