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HPLC Method for Assessment of *In Vitro* and *In Vivo* Recovery of Gatifloxacin Using Microdialysis

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***SUMMARY*. A simple and sensitive HPLC method was validated for assessment of *in vitro* and *in vivo* recovery of gatifloxacin using microdialysis. The validation parameters of linearity, precision, accuracy and limit of detection were studied as well as stability. Correlation coefficient (r^2) obtained was > 0.999 for all calibration curves (20 - 600 ng.mL^{-1}). Intra- and inter-day precision, expressed as the relative standard deviation (RSD) were less than 1.59 % and 1.33 %, respectively. Acceptable accuracy was achieved for all concentrations (99.17-101.35 %). The limit of quantification of the method was 20 ng.mL^{-1}. The method showed the stability of gatifloxacin when submitted to different conditions. The validated method was applied to study calibration of microdialysis probes. The probe recovery was determined by no net flux experiment *in vitro* and *in vivo*. The *in vitro* and *in vivo* recovery for gatifloxacin was 30.9 ± 2.9 % and 28.9 ± 0.8 %, respectively. No differences were found between the two approaches. The HPLC method offers advantages because it has no extra sample handling steps; it is sensitive and can be used to determine free concentrations of gatifloxacin in tissues.**

KEY WORDS: Gatifloxacin, High performance liquid chromatography, Microdialysis, No net flux, Probe recovery.

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