

International publications of Damanhour University

Papers published Internationally by Damanhour University Staff Members of Different Departments

(4)

Abdelwahab, N. S., et al. (2017). "Different Spectrophotometric and Chromatographic Methods for Determination of Mepivacaine and Its Toxic Impurity." J AOAC Int.

Stability-indicating spectrophotometric, TLC-densitometric, and ultra-performance LC (UPLC) methods were developed for the determination of mepivacaine HCl (MEP) in the presence of its toxic impurity, 2,6-dimethylaniline (DMA). Different spectrophotometric methods were developed for the determination of MEP and DMA. In a dual-wavelength method combined with direct spectrophotometric measurement, the absorbance difference between 221.4 and 240 nm was used for MEP measurements, whereas the absorbance at 283 nm was used for measuring DMA in the binary mixture. In the second-derivative method, amplitudes at 272.2 and 232.6 nm were recorded and used for the determination of MEP and DMA, respectively. The developed TLC-densitometric method depended on chromatographic separation using silica gel 60 F254 TLC plates as a stationary phase and methanol-water-acetic acid (9 + 1 + 0.1, v/v/v) as a developing system, with UV scanning at 230 nm. The developed UPLC method depended on separation using a C18 column (250 x 4.6 mm id, 5 µm particle size) as a stationary phase and acetonitrile-water (40 + 60, v/v; pH 4 with phosphoric acid) as a mobile phase at a flow rate of 0.4 mL/min, with UV detection at 215 nm. The chromatographic run time was approximately 1 min. The proposed methods were validated with respect to International Conference on Harmonization guidelines regarding precision, accuracy, ruggedness, robustness, and specificity.