Analytical methods for the determination of paracetamol, pseudoephedrine and brompheniramine in ComtrexÈ tablets

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Abstract

ComtrexÈ tablets composed of paracetamol, pseudoephedrine and brompheniramine are widely used for relieving symptoms related to common cold. This study has overcome the challenging dosage form ratio (250:15:1) and proposed chromatographic methods for analyzing the ternary combination were utilized displaying different apparatus, solvents and sensitivity ranges. Three chromatographic methods namely thin layer chromatography (TLC), high performance liquid chromatography with ultra-violet detection (HPLCïUV) and ultra-performance liquid chromatography coupled to tandem mass spectrometry (UPLC-MS/MS) were developed and validated for the simultaneous determination of the three drugs. Concerning the TLC method, aluminum TLC plates pre-coated with silica gel 60F254 were used and methanol:water:ammonia (9:1:0.1, v/v/v) was applied as a mobile phase; scanning of the plates was carried out at 254 nm. For the HPLCïUV method C18 column was used with an isocratic elution mobile phase composed of water:acetonitrile (75:25, v/v; pH 3.2) and the detection was at 210 nm. For the UPLC-MS/MS method; separation was performed on a UPLC-BEH C18 column with methanol: 0.1% ammonium formate (60:40, v/v) as the mobile phase utilizing diphenhydramine as an internal standard and mass spectrometry was used for detection. The methods were simple, sensitive, accurate and precise. Statistical analysis revealed no significant difference from the reported methods in regard to accuracy and precision

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