Analysis of paracetamol, pseudoephedrine and cetirizine in Cmgtegv"Eqpf Ì"ecruwngu"wukpi"urgevtqrjqvqogvtke" techniques

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Abstract

Paracetamol (PAR), Pseudoephedrine hydrochloride (PSE) and cetirizine dihydrochloride (CET) is a ternary mixture that composes tablets which are popular for the relief of flu in Egypt. The spectra of the drugs were overlapped and no spectrophotometric methods were reported to resolve the mixture. This research proposes four spectrophotometric methods that are efficient and require water only as a solvent. The first method was ratio subtraction-ratio difference method (RSDM) where PAR was initially removed from the mixture by ratio subtraction and determined at 292.4 nm, then PSE and CET were quantified by subtracting the amplitudes of their ratio spectra between 257.0 and 230.0 nm for PSE and between 228.0 and 257.0 nm for CET. The second method was derivative ratio spectra ô zero crossing (DRZC) which was based on determining both PSE and CET from the zero-crossing points of the first and third derivative of their ratio spectra at 252.0 and 237.0 nm, respectively while PAR was determined using its first derivative at 292.4 nm. Moreover, the ternary mixture was resolved using successive derivative ratio (SDR) method where PAR, PSE and CET were determined at 310.2, 257.0 and 242.4 nm, respectively. The fourth proposed method was pure component contribution algorithm (PCCA) which was applied to quantify the drugs at their
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suggested methods were effectively applied to analyze laboratory prepared mixtures and their combined dosage form.