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Batch and CloudPointExtraction Spectrophotometric Methods for the Determination of Two Types Catecholamine Drugs

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Abstract: Batch and cloud point spectrophotometricmethods were developed for the estimation of catecholamine drugs. Batch method is based on diazotization of 2-aminothizole and coupling with adrenaline and dopamine respectively. The resulted dye gives medium violet colored with adrenaline that shows a maximum absorptionatλ_{max}(565) nm, and faint violate colored with dopaminethat shows a maximum absorption at λ_{max}(555) nm. The cloud point extraction method is based on separation and preconcentrationof violet dyewithUV-Visible spectrophotometry detects. The analytical data of the batch method are: theconcentration rangeof(1.0 – 17.5),(1.0 –12.5) µg.ml^{-1},molar absorptivity of (1.7 x 10^4) (5.51 x 10^5) L.mol^{-1}.cm^{-1},Sandell's sensitivity value (0.0175) (0.061) µg.cm^{-1}, limit of detection (0.043)(0.038) µg.ml^{-1}RSD% (0.65%) (0.91%)for(99.83 ± 0.023%) and (99.998 ± 0.036%) for adrenaline and dopamine respectively. The analytical data of the cloud point extraction method were, concentration range of (0.25 – 5.0) µg. ml^{-1}, molar absorptivity of (4.8 x 10^4) (1.8 x 10^5) L.mol^{-1}.cm^{-1}Sandell's sensitivity value (6.1 x 10^{-3}) (0.01) µg.cm^{-1},limit of detection (0.019) (0.025) µg.ml^{-1}, RSD% (0.307%) and (0.445%)and the recovery were (100.03 ± 0.008%), (99.93 ± 0.009%) for adrenaline and dopamine respectively. In addition, the measurement enrichment factor (2.71), (2.46) and preconcentrationfactor (25) for adrenaline and dopamine respectively.Thetwomethods wereexaminedsuccessfully for the estimation of adrenaline and dopamine in traditional drugs and urine.

Key words: Spectrophotometry, Catecholamine, Adrenaline, Epinephrine, Dopamine, 2-aminothiazole, and cloud point extraction.

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