



2,5-dimethoxyaniline as a New Coupling Agent for the Spectrophotometric Determination of Sulfamethoxazole by Diazotization-Coupling Reaction

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ABSTRACT

A simple, rapid, sensitive, selective, and accurate method for the spectrophotometric determination of sulfamethoxazole (SMZ) in bulk and in dosage forms. The method is based on diazotization of primary amine group of SMZ with sodium nitrite and hydrochloric acid followed by coupling with 2,5-dimethoxyaniline (DMA) in aqueous mildly acidic medium to form a stable orange-yellow azo dye, showed a maximum absorption at 475 nm. Beer's law was obeyed over the concentration range of 0.1-8 ppm with a molar absorptivity $5.11 \times 10^4 \text{ L.mol}^{-1}.\text{cm}^{-1}$. Sandell's sensitivity, limit of detection (LOD), and limit of quantification (LOQ) are $0.005 \mu\text{g.cm}^{-2}$, 0.017 ppm, and 0.06 ppm respectively. The method has been successfully applied to the determination of (SMZ) in bulk and in its pharmaceutical preparations, oral suspension, and tablet with very good recoveries 99.35-100.2%.

Keywords: Spectrophotometry, Sulfamethoxazole, Diazotization-coupling, 2,5-dimethoxyaniline.
