A Simple Kinetic Spectrophotometric Method for the Determination of Salbutamol in the Dosage Forms

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A simple and sensitive kinetic method for the determination of salbutamol in pharmaceutical preparations has been developed. The method is based upon the kinetic determination of the oxidation product of the drug with alkaline potassium permanganate at the room temperature for the fixed time of 30 min. The absorbance of the coloured manganate group compound was measured at 610 nm. The absorbance changed linearly with the concentration in the range of 2–10 µg mL⁻¹ (r = 0.9995) and the minimum detectability (S/N = 2) was 0.2 µg mL⁻¹ (3.47 × 10⁻⁷ mol L⁻¹). Different experimental parameters affecting the development and stability of the colour have been carefully studied and optimised. Determination of salbutamol by the fixed-concentration and rate-constant methods is also feasible using the appropriate calibration equations, yet the fixed-time method has proved to be more advantageous. It was further applied to the determination of salbutamol in pharmaceutical formulations. The results were in good agreement with those obtained with the reference method. The reaction pathway has been proposed as well.

Opracowano prostą i czułą kinetyczną metodę oznaczania salbutamolu w preparatach farmaceutycznych. Metoda jest oparta na kinetycznym oznaczaniu produktu utleniania leku za pomocą zasadowego roztworu nadmanganianu potasu w temperaturze pokojowej w ustalonym czasie 30 min. Absorbancję barwnego rodnika manganianowego mierzono przy długości fali 610 nm. Wykres: absorbancja – stężenie był prostoliniowy w zakresie stężeń 2–10 µg mL⁻¹ (r = 0,9995) z granicą detekcji (S/N = 2) równą 0,2 µg mL⁻¹ (3,47 × 10⁻⁷ mol L⁻¹). Zbadano i zoptymalizowano różne parametry doświadczeni wpływające na rozwinięcie i trwa-

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