



Cost-Effective Liquid Chromatographic Approach for Rapid Detection of Remdesivir in Pure Form and Pharmaceutical Formulations

Parin Chokshi*

Faculty of Biology, University of Warsaw, I. Miecznikowa 1, 02-096, Warsaw, India

Abstract

The evaluation of Remdesivir in pure form and pharmaceutical dosage formulation has been established and

Keywords:

Introduction

Introduction text describing the study's background and objectives.

*Corresponding author: [email address]

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Chemicals and Reagents

Remdesivir (C₁₆H₁₈N₂O₇), Acetonitrile (CH₃CN), Methanol (CH₃OH), Water (H₂O), Sodium Phosphate Dibasic (Na₂HPO₄), Sodium Phosphate Monobasic (NaH₂PO₄), Sodium Chloride (NaCl), Sodium Nitrate (NaNO₃), Sodium Nitrite (NaNO₂), Sodium Sulfate (Na₂SO₄), Sodium Acetate (CH₃COONa), Sodium Citrate (C₆H₅O₇Na₃), Sodium Hydroxide (NaOH), Hydrochloric Acid (HCl), Phosphate Buffer (pH 7.0), Phosphate Buffer (pH 6.5), Phosphate Buffer (pH 6.0), Phosphate Buffer (pH 5.5), Phosphate Buffer (pH 5.0), Phosphate Buffer (pH 4.5), Phosphate Buffer (pH 4.0), Phosphate Buffer (pH 3.5), Phosphate Buffer (pH 3.0), Phosphate Buffer (pH 2.5), Phosphate Buffer (pH 2.0), Phosphate Buffer (pH 1.5), Phosphate Buffer (pH 1.0), Phosphate Buffer (pH 0.5), Phosphate Buffer (pH 0.0).

Wavelength determination for Remdesivir ()

The wavelength of maximum absorption (λ_{max}) for Remdesivir was determined by scanning the pure compound in the range of 200-300 nm. The results showed that the maximum absorption of Remdesivir was at 245 nm.

HPLC chromatographic conditions

The HPLC system was equipped with a Shimadzu LC-10ATV pump, a Shimadzu SPD-10AVP detector, and a Shimadzu CTO-10AC oven. The mobile phase was composed of a mixture of acetonitrile and water. The flow rate was maintained at 1.0 mL/min. The column temperature was kept constant at 30°C. The injection volume was 20 µL. The detection wavelength was set at 245 nm. The retention time of Remdesivir was approximately 10.5 minutes.

i. Solution Preparations

- 100 µg/mL Remdesivir standard solution in phosphate buffer (pH 7.0).
- 100 µg/mL Remdesivir standard solution in phosphate buffer (pH 6.5).

ii. Diluent-1

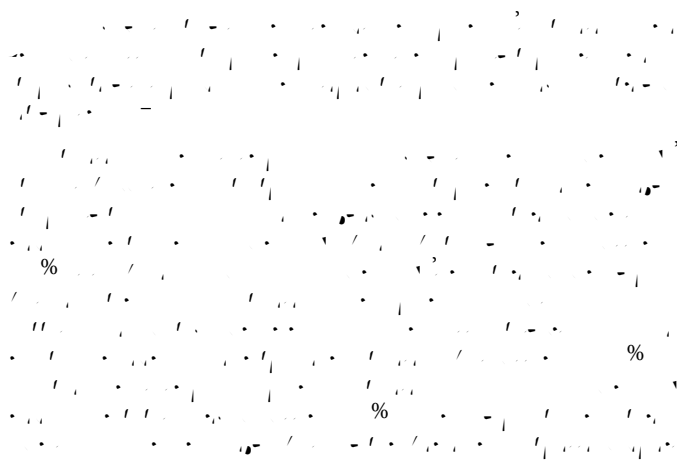
- Phosphate buffer (pH 7.0) containing 0.1% sodium chloride and 0.1% sodium nitrate.

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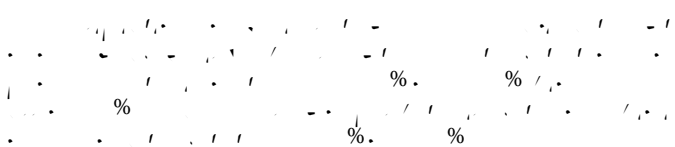
Sensitivity: limit of detection (LOD) and limit of quantification (LOQ)



Precision



Accuracy



Robustness

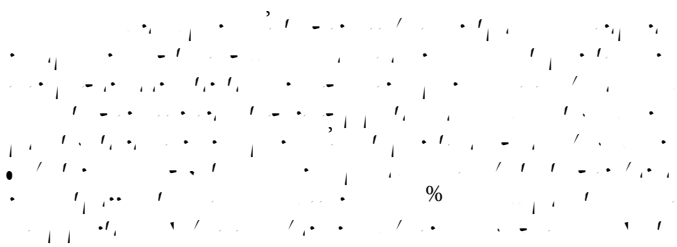


Table 6: Regression analysis of Remdesivir in pure form and pharmaceutical formulations.

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• *Chokshi P (2023) Cost-E fective Liquid Chromatographic Approach for Rapid Detection of Remdesivir in Pure Form and Pharmaceutical Formulations. J Anal Bioanal Tech 14: 496.*

Solution Stability

• *Chokshi P (2023) Cost-E fective Liquid Chromatographic Approach for Rapid Detection of Remdesivir in Pure Form and Pharmaceutical Formulations. J Anal Bioanal Tech 14: 496.*