Latin American Journal of Pharmacy
(formerly *Acta Farmacéutica Bonaerense*)
Lat. Am. J. Pharm. **41** (11): 2196-2202 (2022)

Received: June 24, 2022
Accepted: August 4, 2022

HPLC Method Development and Quantification of Favipiravir in Both Bulk and Solution Form

Meshal ALSHAMRANI [1], Waqar SIDDIQUE [2]*, Muhammad WAQAS [3], Muhammad MUKHTIAR [4], Anam YASMEEN [2], Touran SHABANI [4], Syed Sikander SHAH [5], Noor RAHMAN [6], Muhammad ZAMAN [3], Ahmad SALAWI [1], Awaji Y. SAFHI [1], & Fahad Y. SABEI [1]

[1] *Department of Pharmaceutics, College of Pharmacy, Jazan University, Jazan 45142, Saudi Arabia*
[2] *Department of Pharmacy, University of South Asia, Lahore, Pakistan*
[3] *Faculty of Pharmacy, University of Central Punjab, Lahore, Pakistan*
[4] *Department of Pharmacy, Faculty of Medical and Health Sciences, University of Poonch Rawalakot, AJK, Pakistan*
[5] *Department of Clinical Pharmacy, Faculty of Pharmacy, European University of Lefke, Lefke, Cyprus*
[6] *Faculty of Pharmaceutical Sciences, Abasyn University, Peshawar, KPK, Pakistann*

SUMMARY. **Favipiravir (FVP) structurally is an analog of pyrazine and showed its antiviral actions against a diverse species of viruses. Due to this fact, it was chosen as a potential candidate to be further investigated to cure COVID-19. A simple, accurate, rapid, precise, high-performance liquid chromatography (HPLC) method has been established for quality control assurance of FVP in pharmaceutical preparations. Column no C8 (150 mm × 4.6 mm; 5 µm) was used for such separation analysis. A combination of acetonitrile and phosphate buffer was used in 10:90 ratios as the mobile phase (90:10, v/v) having a flow rate of 1 mL / min. further, it was detected at 220 nm, and the temperature was maintained at 25 °C. The run time was then set at 10 min. A linear relationship of R^2 0.998 was confirmed while drawing a graph between FVP concentration and peak area that has a concentration range of 40-200 ppm. The developed method is sensitive (limits of detection and quantification are 1.83 ppm and 5.75 ppm respectively). Three injections at concentrations of 80,100 and 120 (ppm) were injected the same day to ensure the precision of the method. The prepared solution remains stable for 24 h. The suggested method has been successfully useful for the quantification of FVP in pharmaceutical formulations.**

RESUMEN. Favipiravir (FVP) estructuralmente es un análogo de la pirazina y mostró sus acciones antivirales contra diversas especies de virus. Debido a este hecho, fue elegido como un candidato potencial para ser investigado más a fondo para curar el COVID-19. Se ha establecido un método de cromatografía líquida de alto rendimiento (HPLC) simple, exacto, rápido y preciso para garantizar el control de calidad de FVP en preparaciones farmacéuticas. Se utilizó la columna C8 (150 mm × 4,6 mm; 5 µm) para dicho análisis de separación. Se utilizó una combinación de tampón de acetonitrilo y fosfato en proporciones de 10:90 como fase móvil (90:10, v/v) con un caudal de 1 ml/min. además, se detectó a 220 nm y la temperatura se mantuvo a 25 °C. A continuación, el tiempo de ejecución se fijó en 10 min. Se confirmó una relación lineal de R2 0.998 al dibujar un gráfico entre la concentración de FVP y el área del pico que tiene un rango de concentración de 40-200 ppm. El método desarrollado es sensible (los límites de detección y cuantificación son 1,83 ppm y 5,75 ppm respectivamente). Se inyectaron tres inyecciones a concentraciones de 80, 100 y 120 (ppm) el mismo día para asegurar la precisión del método. La solución preparada permanece estable durante 24 h. El método sugerido ha resultado útil para la cuantificación de FVP en formulaciones farmacéuticas.

KEY WORDS: anti-viral, chromatogram, HPLC, linearity, specificity.

* Author to whom correspondence should be addressed. *E-mail:* wpharmacist@gmail.com

ISSN 0326 2383 (printed ed.)
ISSN 2362-3853 (on line ed.)