Latin American Journal of Pharmacy
(formerly *Acta Farmacéutica Bonaerense*)
Lat. Am. J. Pharm. **40** (12): 2894-9 (2021)

Received: October 5, 2021
Revised: October 21, 2021
Accepted: October 23, 2021

Pharmacokinetic Evaluation of Raft Forming Tablet for Controlled Delivery of Pantoprazole Sodium Sesquihydrate

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***SUMMARY*. Alginate-pectin polymeric raft forming tablets were developed with the aim of controlled delivery of pantoprazole sodium sesquihydrate (PSS). The pharmacokinetic of PSS was evaluated using non-compartmental and one compartmental approach after oral administration of raft forming tablets. The R9 formulation and Zopent 40 mg tablet was selected as test and reference formulations respectively. Twelve albino rabbits were selected and divided into 2 groups using Latin square cross over design and blood samples were collected for 24 h. Different pharmacokinetic parameters of the test and reference formulations were calculated using Kinetica 4.4.1. Average values of C_{max} and t_{max} were 46.305 ± 0.507 μg/mL and 4 ± 1.398 h for the reference formulation but C_{max} and t_{max} of test formulation was 46.089 ± 0.567 μg/mL and 8 ± 2.345 h, respectively. $AUC_{(0-t)}$ of reference and test formulations were 363.705 ± 2.017 μg × h/mL and 513.072 ± 3.467 μg × h/mL respectively. $AUC_{(0-\infty)}$ of the reference and test formulations were 393.122 ± .408 μg × h/mL and 549.443 ± .678 μg × h/mL respectively. AUMC of the reference and test formulations were 3761.022 ± 3.902 μg × h/mL and 5966.536 ± 2.896 μg × h/mL. MRT of reference and test formulation was 9.567 ± 4.289 h and 10.589 ± 3.896 h, respectively. The *p* value of T_{max} and C_{max} were 0.0001 and 0.0024 respectively indicates the results are statistically significant.**

RESUMEN. Los comprimidos poliméricos formadores de balsa de alginato-pectina se desarrollaron con el objetivo de administrar de forma controlada el pantoprazol sódico sesquihidratado (PSS). La farmacocinética de PSS se evaluó utilizando un enfoque no compartimental y uno compartimental después de la administración oral de tabletas formadoras de balsa. La formulación R9 y el comprimido de Zopent 40 mg se seleccionaron como formulaciones de prueba y de referencia, respectivamente. Se seleccionaron doce conejos albinos y se dividieron en 2 grupos utilizando un diseño de cruz latina y se recolectaron muestras de sangre durante 24 h. Se calcularon diferentes parámetros farmacocinéticos de las formulaciones de prueba y de referencia utilizando Kinetica 4.4.1. Los valores promedio de C_{max} y t_{max} fueron 46.305 ± 0.507 μg/mL y 4 ± 1.398 h para la formulación de referencia, pero C_{max} y t_{max} de la formulación de prueba fueron 46.089 ± 0.567 μg/mL y 8 ± 2.345 h, respectivamente. El $AUC_{(0-t)}$ de las formulaciones de referencia y de prueba fue 363,705 ± 2,017 μg × h/mL y 513,072 ± 3,467 μg × h/mL respectivamente. El AUC (0-∞) de las formulaciones de referencia y de prueba fue 393,122 ± 0,408 μg × h / mL y 549,443 ± 0,678 μg × h/mL, respectivamente. El AUMC de las formulaciones de referencia y de prueba fue 3761,022 ± 3,902 μg × h/mL y 5966,536 ± 2,896 μg × h/mL. El MRT de la formulación de referencia y de prueba fue de 9.567 ± 4.289 h y 10.589 ± 3.896 h, respectivamente. El valor p de T_{max} y C_{max} fueron 0,0001 y 0,0024, respectivamente, lo que indica que los resultados son estadísticamente significativos.

KEY WORDS: alginate-pectin rafts, controlled release, non-compartmental analysis, one compartmental analysis, pantoprazole.

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