Latin American Journal of Pharmacy
(formerly *Acta Farmacéutica Bonaerense*)
Lat. Am. J. Pharm. **42** (6): 1148-54 (2023)

Received: January 30, 2023
Accepted: March 4, 2023

Formulation Development and *In vitro* Characterization of Omperazole Floating Tablets by Using Eudragit and HPMC

Pervaiz Akhtar SHAH [1] *, Yousaf KAMAL [2], Fizza Abdul RAZZAQ [3], Hafiz Muhammad RAMZAN [4], Alina SHOUKAT [1], Areeba PERVAIZ [1], Iqra LIAQAT [5], Shahzad ANWAR [6], Waqas Haider KHAN [3], Taha NAZIR [7] & Syed Haroon KHALID [3] *

[1] *Department of Pharmaceutics, College of Pharmacy, Punjab University, 54590, Lahore, Pakistan*

[2] *Hamdard Institute of Pharmaceutical Sciences, Hamdard University Karachi, Islamabad Campus 45550, Pakistan.*

[3] *Department of Pharmaceutics, Faculty of Pharmaceutical Sciences, Government College University, Faisalabad, 38000, Faisalabad, Pakistan.*

[4] *Pharmacy Department Gulab Devi Educational complex, Lahore, Pakistan*

[5] *Institute of Pharmacy, University of Veterinary and Animal Sciences. Lahore, Pakistan*

[6] *Department of Pharmacy, FC College Lahore, Pakistan*

[7] *Advanced Multiple Inc. 6660 Kennedy Road, # 205, Mississauga ON, L5T 2M9 Canada.*

SUMMARY. **The purpose of research was to formulate and evaluate gastro retentive floating tablets of omeprazole by using varying concentrations of polymers like Hydroxypropyl methyl cellulose (HPMC) and Eudragit. HPMC and Eudragit can delay the drug release so that the drug can reach at specific site in controlled manner. Different formulations were prepared by employing direct compression technique and sodium bicarbonate as gas generating agent. All the tablets were evaluated for pre and post compression test, *in vitro* release and buoyancy studies. All tablets demonstrated optimum flowing, hardness, friability, weight uniformity, and swelling. DSC confirmed the absence of any incompatibilities between drug and polymer. Findings of *in vitro* release showed that increasing the concentration of polymers significantly sustained the release and buoyancy time, which was found higher for F6 formulation consisting of both hydrocolloids. Among the polymers, Eudragit alone showed superior sustained release when compared to HPMC. Overall, release followed korsmeyer peppas model and greater n value showed that release mechanisms followed erosion mechanism hence, exhibiting the potential of HPMC and Eudragit to successfully formulate gastro retentive floating tablets of omeprazole.**

RESUMEN. El objetivo de la investigación fue formular y evaluar comprimidos flotantes de omeprazol para la retención gastronómica mediante el uso de concentraciones variables de polímeros como la hidroxipropilmetilcelulosa (HPMC) y Eudragit. HPMC y Eudragit pueden retrasar la liberación del fármaco para que el fármaco pueda llegar a un sitio específico de manera controlada. Se prepararon diferentes formulaciones empleando la técnica de compresión directa y bicarbonato de sodio como agente generador de gas. Todas las tabletas fueron evaluadas para pruebas de pre y post compresión, liberación *in vitro* y estudios de flotabilidad. Todos los comprimidos demostraron fluidez, dureza, friabilidad, uniformidad de peso e hinchamiento óptimos. DSC confirmó la ausencia de incompatibilidades entre el fármaco y el polímero. Los hallazgos de la liberación *in vitro* mostraron que el aumento de la concentración de polímeros mantuvo significativamente el tiempo de liberación y flotabilidad, que se encontró más alto para la formulación F6 que consiste en ambos hidrocoloides. Entre los polímeros, Eudragit solo mostró una liberación sostenida superior en comparación con HPMC. En general, la liberación siguió el modelo de Korsmeyer-Peppas y un mayor valor de n mostró que los mecanismos de liberación siguieron al mecanismo de erosión, por lo tanto, exhibiendo el potencial de HPMC y Eudragit para formular con éxito tabletas flotantes de omeprazol gastrorretentivas.

KEY WORDS: eudragit, floating tablets, gastro retentive mechanism, HPMC, omeprazole.

* Authors to whom correspondence should be addressed. *E-mails:* pashah6512@yahoo.com (Pervaiz A. Shah); haroonkhalid80@gmail.com, syedharoonkhalid@gcuf.edu.pk (Syed Haroon Khalid).

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