

3D Printing of Tailored Veterinary Dual-Release Tablets: A Semi-Solid Extrusion Approach for Metoclopramide

Rathna Mathiyalagan^a, Max Westerlund^a, Alaa Mahran^a, Rabia Altunay^{b,c}, Jarkko Suuronen^b,
Mirja Palo^a, Johan O. Nyman^a, Eero Immonen^c, Jessica M. Rosenholm^{*a}, Erica Monaco^a and Xiaoju Wang^{*a}

- Pharmaceutical Sciences Laboratory, Faculty of Science and Engineering, Åbo Akademi University, Tykistökatu 6A, 20520 Turku, Finland.
- School of Engineering Sciences, Lappeenranta-Lahti University of Technology LUT, Yliopistonkatu 34, 53850, Lappeenranta, Finland
- Computational Engineering and Analysis Research Group, Turku University of Applied Sciences, Joukahaisenkatu 3, 20520, Turku, Finland

Corresponding author's email address: jessica.rosenholm@abo.fi and xiaoju.wang@abo.fi

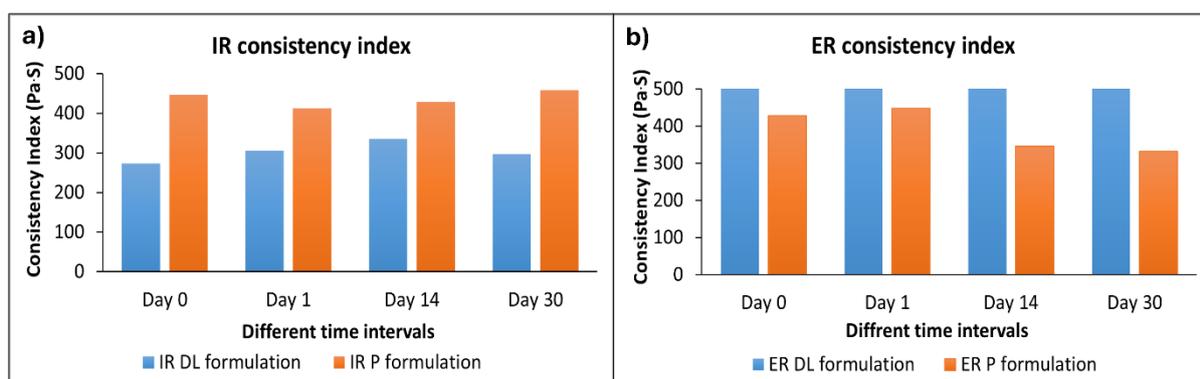


Fig. S1 The consistency index of the drug-loaded (DL) and placebo (P) a) immediate (IR), and b) extended-release (ER) formulations at different time intervals of days 0, 1, 14, and 30.

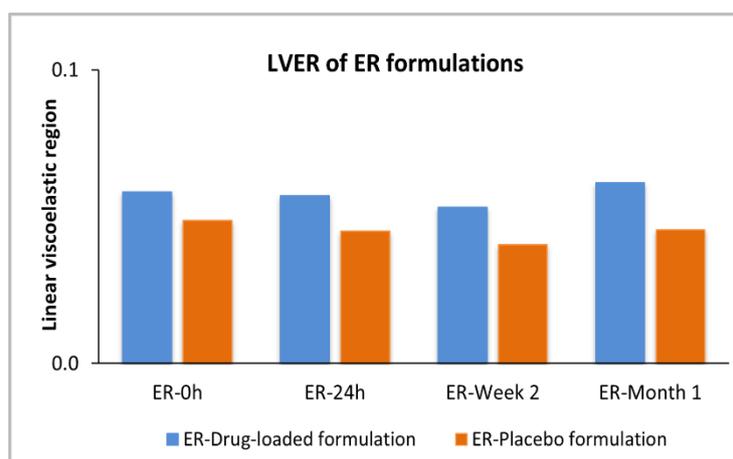


Fig. S2 Linear viscoelastic regions (LVER) of extended-release (ER) drug-loaded and placebo formulations at different intervals of days 0, 1, 14, and 30.



Fig. S3 Panorama image of scanning electron microscope (SEM) of dual drug-release tablet cross-section.

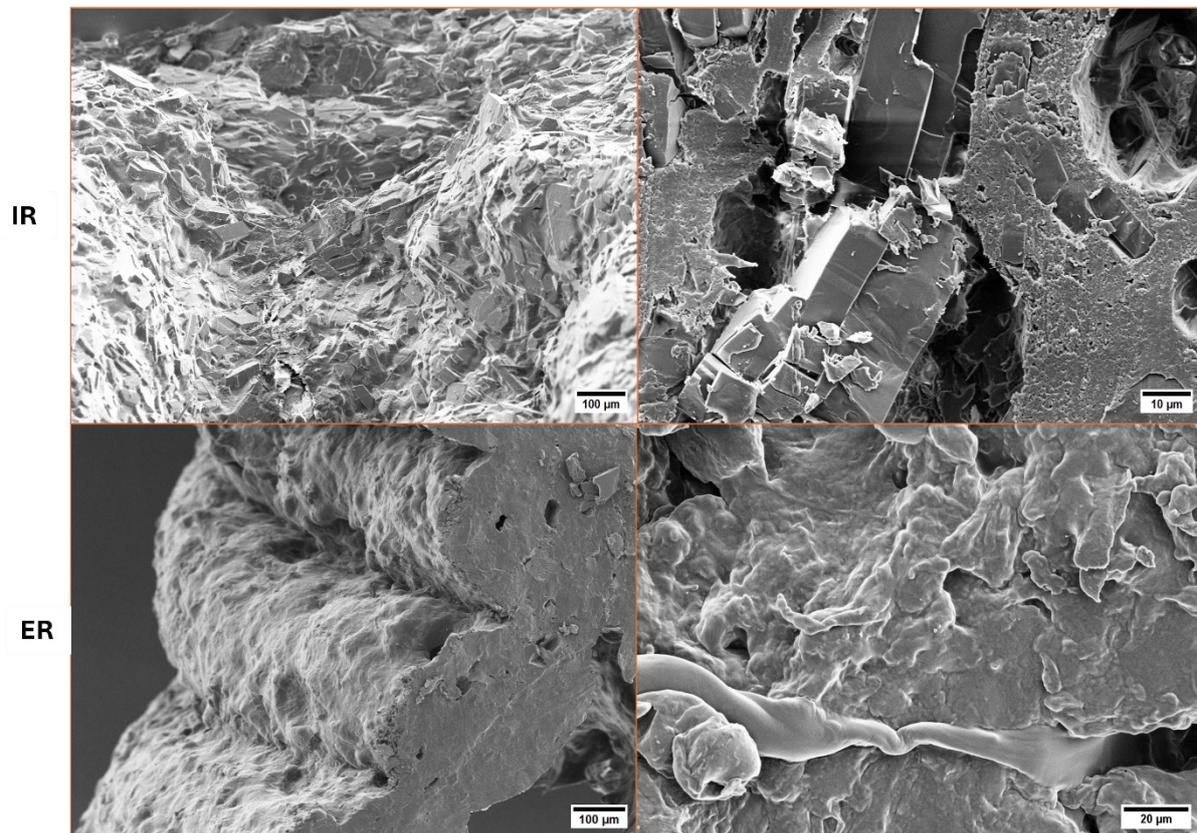


Fig. S4 The left side shows SEM images of the dual-release placebo tablet surface area of immediate (IR) and a lateral view of extended-release (ER), and the right side shows cross-cuts of both layers.

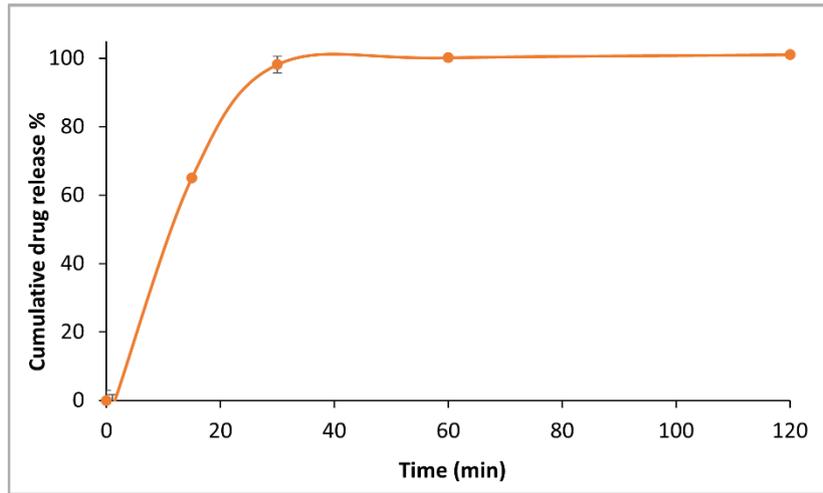


Fig. S5 Drug dissolution release profile of immediate-drug-release tablets in pH 1.2.

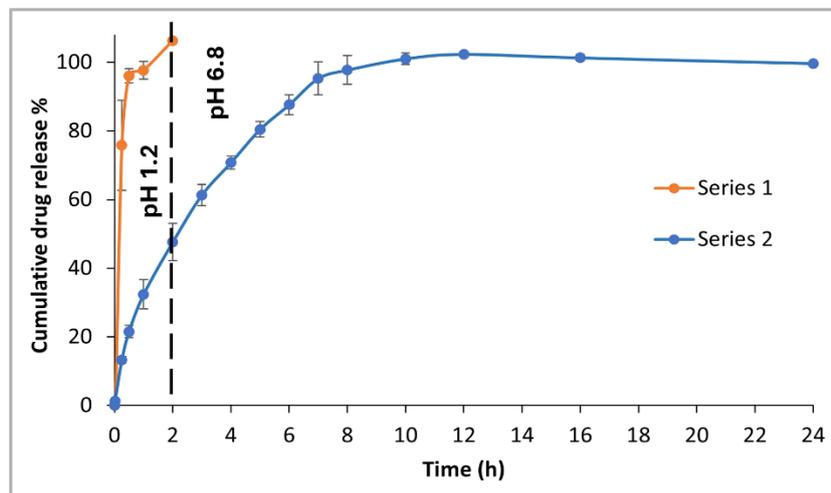


Fig. S6 Drug dissolution release profile of dual drug-release tablet Series 1 and 2 in a buffer system.

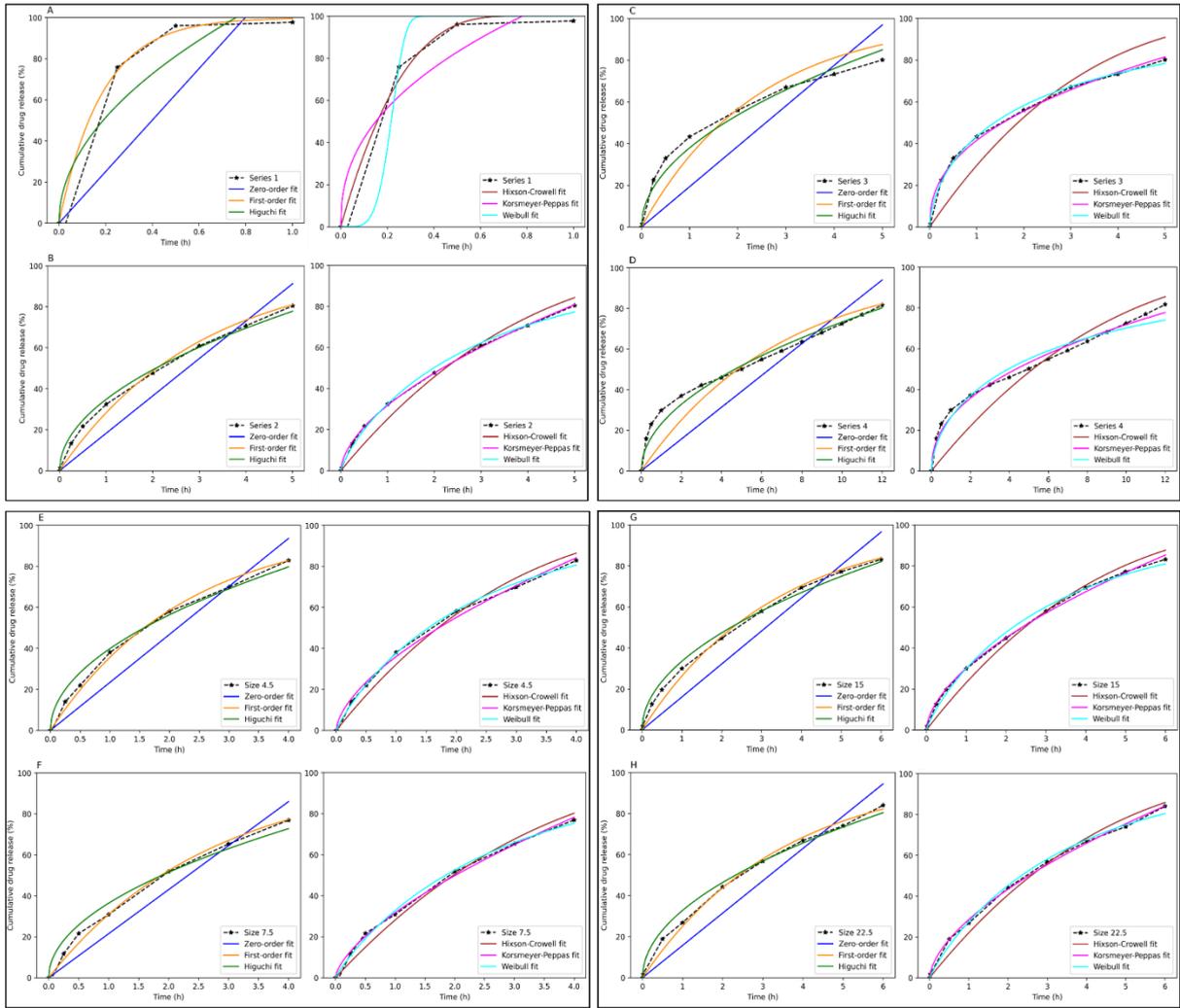


Fig. S7. Drug release kinetic models of dual-release tablets: A) series 1, B) series 2, C) series 3, and D) series 4, and different-sized tablets E) size 4.5, F) size 7.5, G) size 15, and H) size 22.5.