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Authors	Lange, Justus Johann;Enzner, Lukas;Kuentz, Martin;O'Dwyer, Patrick J.;Saal, Wiebke;Griffin, Brendan T.;Wyttenbach, Nicole
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Exploration of Solubilisation Effects Facilitated by the Combination of Soluplus® with Ionic Surfactants

Justus Johann Lange[a], Lukas Enzner[b], Martin Kuentz[c], Patrick J. O'Dwyer[a], Wiebke Saal[b], Brendan T. Griffin[a,*], Nicole Wyttenbach[b]

[a] *School of Pharmacy, University College Cork, College Road, Cork, T12 R229, Cork County, Ireland*
[b] *Roche Pharmaceutical Research & Early Development, preclinical CMC, Roche Innovation Center Basel, F. Hoffmann-La Roche Ltd., Grenzacherstrasse 124, Basel, CH-4070, Basel City, Switzerland*
[c] *Institute of Pharma Technology, University of Applied Sciences and Arts Northwestern Switzerland, Hofackerstrasse 30, Muttenz, CH-4231, Basel City, Switzerland*

1. Supplementary Material

The solubility values determined at the highest concentration of incorporated ionic surfactant are illustrated in Figure 1.

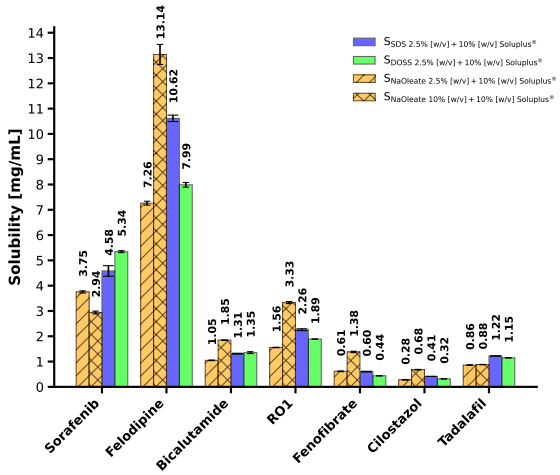

Figure 1: Drug solubility in 10% [w/v] Soluplus® solutions including 2.5% [w/v] ionic surfactant and 10% [w/v] NaOleate.

The solubilisation ratio was calculated based on Equation 1, in which C_x corresponds to the concentration of the drug in the composite vehicle at 1% [w/v] ionic surfactant incorporated, and C_y to the solubility in 10% [w/v] Soluplus®. The values are depicted in Figure 2.

$$SR = \frac{C_{x_{(1\%[w/v])}}}{C_y} \tag{1}$$

The standard error was calculated as reported previously and outlined in Equation 2. Where the σ values correspond to the respective standard deviations (Bennett-Lenane et al., 2021).

$$SE_{SR} = SR \cdot \sqrt{\left(\frac{\sigma_{x_{(1\%[w/v])}}}{C_{x_{(1\%[w/v])}}}\right)^2 + \left(\frac{\sigma_y}{C_y}\right)^2} \tag{2}$$

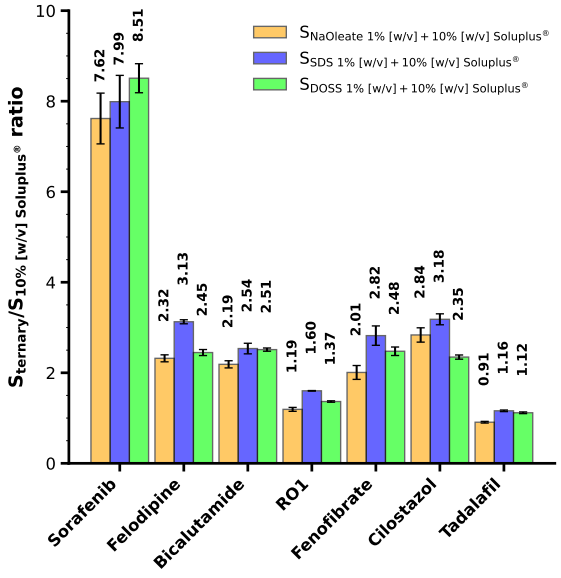

Figure 2: Solubilisation ratio of the composite systems at 1% [w/v] ionic surfactant incorporated over the solubility in 10% [w/v] Soluplus®.

References

Bennett-Lenane, H., O'Shea, J.P., Murray, J.D., Ilie, A.R., Holm, R., Kuentz, M., Griffin, B.T., 2021. Artificial neural networks to predict the apparent degree of supersaturation in supersaturated lipid-based formulations: A pilot study. Pharmaceutics 13, 1398. URL: http://dx.doi.org/10.3390/pharmaceutics13091398, doi:10.3390/pharmaceutics13091398.

*Corresponding author
Email address: brendan.griffin@ucc.ie (Brendan T. Griffin)