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Permeation profiles of hormones and NSAIDs through vaginal mucosa using Pentravan cream

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Vaginal delivery is currently considered to be an important route for poorly-absorbed, rapid-metabolized oral drugs, and it also provides both local and systemic drug delivery. Drug absorption studies are compulsory to establish vaginal permeation kinetics, and in this work we evaluated the possibility of using Pentravan® (Fagron) as a vehicle to deliver drugs by this route. For this purpose, we used gestrinone, progesterone, testosterone, nimesulide and piroxicam creams using Franz diffusion cells with porcine vaginal mucosas. The vehicle was able to deliver approximately 88.17, 7.70, 22.87, 8.34, and 95.71 μg of gestrinone, progesterone, testosterone, nimesulide and piroxicam (respectively) per cm2 of skin by the end of the experiment, when considering only the drug that reached the receptor medium. We also evaluated resveratrol vaginal permeation. For that, we used a previously validated method and tested it with three different stationary phases: a commercial C18 column and two laboratory-made chromatographic columns containing poly(methyloctadecylsiloxane) (PMODS) thermally immobilized onto zirconized silica (Zr-PMODS) or titanized silica (Ti-PMODS). The transdermal vehicle used was also Pentravan®. The permeation experiments showed that resveratrol presented a high rate of retention within the vaginal mucosa, which suggests a local use rather a systemic one. This creates the hypothesis that the formulations with resveratrol, progesterone, nimesulide and piroxicam would be suitable for local vaginal treatments that could benefit from the diverse biological effects of these substances. We also highlight the potential of gestrinone and testosterone to act systemically when compounded using Pentravan®, making the route a viable alternative for other traditional routes.

Biography

Hudson Polonini has completed his PhD at 2014 from Federal University of Juiz de Fora. He studies analysis and control of medicines and related products, pharmaceutical and cosmeceutical technology, bio-pharmacy, natural products and (nano)ecotoxicology. He has published 40 papers in reputed journals, two patents and also some awards in innovation competitions.

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