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Improving bioavailability of Resveratrol: Transdermal, transmucosal and nanotechnology strategies

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Resveratrol (3,5,4-trihydroxystilbene) is a prominent substance in currently pharmaceutical research. It is a naturally occurring non-flavanoid phenolic compound produced by some spermatophytes, notably grapes. The trans-resveratrol isomer is more biologically active: it possesses antioxidant, neuroprotective, antiphotaging and antiviral activities, and it also seems to play a role in the prevention/reduction of pathological processes such as inflammation, cancer and heart diseases. However, trans-resveratrol has poor oral bioavailability, which creates a dilemma between its great *in vitro* efficacy and its low *in vivo* effect. Our group has been dealing with this question. Two previous published studies on its permeations through excised human skin showed that this can be a good alternative to avoid the oral route. They used different methods and obtained very similar results of permeation percentage from emulsions (62.6 % using retention mapping and 64.9% using tape stripping). Another strategies that are currently under evaluation in our laboratory is the transmucosal route, either by oral or vaginal mucosal. Our preliminary results show that these seem to be also efficient routes, as they can act both for systemic drug delivery as for local clinical conditions. Finally, the inclusion of trans-resveratrol in solid lipid nanoparticles (SLN) is will offer additional advantages of stability and delivery of the substance to the body, as shown by the results obtained until now. These data altogether show that these alternative strategies can be safe and of clinical relevance for a more efficient delivery of resveratrol to humans.

Biography

Hudson Polonini, pharmacist, has completed his PhD at 2014 from Federal University of Juiz de Fora and currently performs postdoctoral studies from Federal University of Santa Catarina. He studies: analysis and control of medicines and related products, pharmaceutical and cosmeceutical technology, biopharmacy, natural products and ecotoxicology. He has published 30 papers in reputed journals and he has two patents, and he also has some awards in innovation competitions.

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