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Evaluation of *In Vitro* Intestinal and Cutaneous Permeability of Pentyl Gallate

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***SUMMARY*. Pentyl gallate (PG) is a synthetic *n*-alkyl ester of gallic acid with significant *in vitro* anti-herpetic activity. Given that permeability through different biological membranes may pose as a physiological barrier for the absorption and efficacy of this compound *in vivo,* this study evaluated the intestinal and skin permeability of PG. The initial screening employed two parallel artificial membrane permeability assay (PAMPA) variants to mimic the intestinal epithelium and human stratum corneum layer. Further, intestinal permeability was investigated through bi-directional transport experiments in Caco-2 cells, and skin permeation was evaluated through full pig ear skin mounted into Franz diffusion cells. Results from both PAMPA and Caco-2 models showed that the oral absorption of PG would not be limited by permeability issues, providing important basis for future studies aiming the design of oral formulations for this compound. Additionally, PG was not efficiently transported through the skin, accumulating mainly in the epidermis, a valuable feature for the topical therapy of epithelial herpetic infections.**

KEY WORDS: Caco-2 cell, PAMPA, Pentyl gallate, Permeation, Skin.

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