

# Effect of a biosurfactant extract obtained from corn in active principles permeation

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## Abstract

Nowadays, one of the most important challenges in the pharmaceutical industry is to find additives for formulations which improve the permeation and solubility of drugs. Usually, because of their solubilising and emulsifying properties, it is common to use surfactants in ointments and creams. However, some allergies and adverse effects have been associated with these kinds of substances. In this sense, the study of biosurfactants as an alternative to synthetic surfactants is playing a more important role. Biosurfactants are surface-active compounds, composed of biomolecules, with some advantages in comparison with their chemical counterparts, such as biodegradability or low toxicity. For this reason, the aim of this work was to study the effect of a biosurfactant extract, obtained from a corn-milling industry stream, in drug permeation through polydimethylsiloxane (PDMS). This polymer was chosen as a skin mimic, due to its good correlation with an in vivo situation in a case whereby the penetrant lipophilicity was the prime determinant of compound permeation. During this study, the permeation of five drugs in the presence of biosurfactant at different concentrations were determined, in comparison with a control without the biosurfactant extract.

The results obtained have shown the capacity of this biosurfactant extract to maintain or improve drug permeation through PDMS. This is a promising approach in comparison with the results obtaining with chemical surfactants like sodium dodecyl sulfate (SDS) in the same conditions. Recent Publications 1. Savjani K T, Gajjar A K and Savjani J K (2012) Drug solubility: Importance and enhancement techniques. *ISRN Pharmaceutics* 2012:1-10. 2. Kato K, Igawa K, Nishizawa A, Takayama K and Yokozeki H (2016) Allergic contact dermatitis induced by the anionic surfactant, sodium N-methyl-N-(1-oxododecyl)-beta-alaninate, contained in a daily-use shampoo. *Journal of European Academy of Dermatology and Venereology* 30:e123-e124. 3. Saha P and Rao K V B (2017) Biosurfactants-a current perspective on production and applications. *Nature Environment and Pollution Technology* 16:181-188. 4. Moss G P, Gullick D R and Wilkinson S C (2015) Predictive methods in percutaneous absorption. ISBN 978-3-66247371-9.

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