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## Poloxamer 407-based formulations with antimycotic Ciclopirox Olamine for onychomycosis and skin mycosis therapy

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Fungal infections of nail and skin (onychomycosis and tinea pedis, respectively) are widespread diseases being mostly triggered by the dermatophyte fungus *Trichophyton rubrum*. Since a tinea pedis infection may cause onychomycosis due to autoinoculation, our objective was the development of formulations targeting simultaneously both diseases. The formulations were 5-component systems consisting of poloxamer 407 (P407), double distilled water, isopropyl alcohol, propylene glycol and medium chain triglycerides in given ratios. Into these vehicles, the broad-spectrum antifungal active ingredient ciclopirox olamine was incorporated. The P407-based formulations were characterised macroscopically, microscopically and rheologically. Moreover, permeation and penetration studies across bovine hoof plates and keratin films as artificial nail plate models as well as across isolated human stratum corneum (SC) were performed with modified Franz diffusion cells. The permeated and penetrated drug amount was determined with high performance liquid chromatography (HPLC). To evaluate the antifungal efficacy against the dermatophyte *T. rubrum*, *in vitro* infected nail plate studies with bovine hoof plates and keratin films were carried out according to Lusiana et al., 2013. Moreover, a novel *in vitro* model of infected SC with a polycarbonate filter as backing was established based on abovementioned model (Täuber and Müller-Goymann, 2014; Täuber and Müller-Goymann, 2015a). Differential scanning calorimetry (DSC) measurements were executed to analyse the interaction between the P407-based formulations and SC. Furthermore, one-year stability studies were performed at 30°C to monitor changes of the P407-based formulations during storage.

### Biography

Anja Tauber has studied Pharmacy in Braunschweig and finished her qualification for Analytics in 2016. She completed her PhD from TU Braunschweig, Germany. She has published 5 papers.

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