

Preparation and evaluation of a novel dosage form for nail delivery

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Predominantly, the majority of fungal infections (dermal and nail) are caused by dermatophytes, such as Trichophyton rubrum known as one of the most prominent . Among fungal infections, nail infections or onychomycosis exhibit the most difficulties and limitations in their treatment. Onychomycosis affects around 5-10% of the population in the world. Onychomycosis is a common infection of the nail caused by dermatophyte affecting mostly toenails in adults being associated with limited treatment options. In this study novel dosage forms were prepared and evaluated for their suitability in treatment of onychomycosis. Films were prepared comprising polymeric excipients such as chitosan, (hydroxypropyl)methyl cellulose, hydroxyethyl-cellulose, carboxymethylcellulose according to solvent evaporation method. Developed formulations were evaluated in terms of physical appearance, stability and adhesiveness. Furthermore skin and nail irritation studies were conducted. Five potential formulations (F1-F5) were designed while F1 and F4 exhibited the most promising results in terms of stability with 26 min and 40.67 min, respectively, and suitability in nail application. F1 as the most favorable dosage form revealed with 2.9438 kg/m/s in terms of adhesive force the most adhesive properties in contrast to the other preparations. All formulations were found to be non-skin irritating and safe to use. Taken together, these findings suggest novel designed films containing polymeric excipients as a fruitful platform for the treatment in onychomycosis.

Biography

Flavia Laffleur, is an assistant prfoessorand a senior researcher of Drug Delivery in the Department of Pharmacy at LFU Innsbruck, Austria. Flavia Laffleur published over 68 publications and gave oral presentations on several international conferences. From 2010 until 2013 she completed her doctoral thesis focused on smart drug delivery systems. Since 2013, she is a senior researcher at the Department of Pharmaceutical Technology in Innsbruck. Since 2017, Dr. Flavia Laffleur is a researcher at the MIT, in Boston, Massachusetts. She received several awards, including Lesmüller-Stiftung award and the Galenus Foundation Technology Award. Currently Dr. Laffleur´s research focusses on mucosal drug delivery as well as smart delivery systems to overcome biological barriers

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