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## Characterisation of nanostructured lipid carriers loaded with Ibuprofen

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Ibuprofen is a potent NSAID often used treating acute- and chronic arthritic conditions or acute pain. Its low water-solubility and low bioavailability are great challenge in the development of dermal delivery. One approach for overcoming this problem is the use of lipid nanoparticles. Lipid nanoparticles are intensively studied drug delivery systems derived from o/w emulsions. The oil phase is replaced by a lipid (or mixture of lipids) which is solid at both room and body temperatures. There are two generations of lipid nanoparticles: Solid lipid nanoparticles (SLN) and nanostructured lipid carriers (NLC). Lipid matrix of SLN is produced only from solid lipid(s), while matrix of the NLC consists of a blend of both solid- and liquid lipid(s). These particles are stabilized by surfactants in an aqueous solution. Advantages of NLC systems compared to SLN are higher drug loading capacity and steady drug entrapment during storage. The dermal use of NLC systems offer a number of advantages such as physical stability of the applied topical formulations, enhancement of chemical stability of the incorporated drugs, improved skin bioavailability and skin targeting of actives, film formation on the skin accompanied with controlled occlusion, skin hydration *in vivo*. UV reflecting properties and the opportunity of modulate drug release into the skin has been also reported. The aim of this study was the development and characterization of ibuprofen loaded NLC for dermal drug delivery by means of particle size measurements, zeta potential, drug permeation studies and Raman spectroscopy.

### Biography

Blanka Suto is currently a PhD student in the Department of Pharmaceutical Technology at the Doctorate School Programme of Pharmaceutical Sciences, Faculty of Pharmacy, University of Szeged. Her research work focuses on the preformulation, production and characterization of solid lipid nanoparticles and nanostructured lipid carriers intended for topical use.

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