# **9 PUBLICATION LIST**

## **Refereed Journals:**

Souto, E.B., Wissing, S.A., Barbosa, C.M., Müller, R.H., Development of a controlled release formulation based on SLN and NLC for topical clotrimazole delivery, Int. J. Pharm. 278 (2004) 71-77.

Souto, E.B., Wissing, S.A., Barbosa, C.M., Müller, R.H., Evaluation of the physical stability of SLN and NLC before and after incorporation into hydrogel formulations, Eur. J. Pharm. Biopharm. 58 (2004) 83-90.

Souto, E.B., Wissing, S.A., Barbosa, C.M., Müller, R.H., Comparative study between the viscoelastic behaviors of different lipid nanoparticle formulations, J. Cosmet. Sci. 55(2004) 463-471.

Souto, E.B., Anselmi, C., Centini M., Müller, R.H., Preparation and characterization of N-dodecyl-ferulate-loaded solid lipid nanoparticles (SLN<sup>®</sup>), Int. J. Pharm. 295 (2005) 261-268.

Radtke, M., Souto E.B., Müller R.H., NLC<sup>®</sup> – The novel generation of solid lipid carriers, Pharm. Tech. Europe 17 (2005) 45-50.

Zimmermann, E., Souto, E.B., Müller, R.H., Physicochemical investigations on the structure of drug-free and drug-loaded solid lipid nanoparticles (SLN<sup>TM</sup>) by means of DSC and <sup>1</sup>H-NMR, Die Pharmazie 60 (2005) 508-513.

Souto, E.B., Gohla, S., Müller, R.H., Rheology of nanostructured lipid carriers (NLC<sup>®</sup>) suspended in viscoelastic medium, Pharmazie 60 (2005) 671-673.

Souto, E.B., Müller, R.H., SLN and NLC for topical delivery of ketoconazole, J. Microencapsul. (2005) in press.

Souto, E.B., Müller, R.H., Investigation of the factors influencing the incorporation of clotrimazole-loaded lipid nanoparticles prepared by hot high-pressure homogenization, J. Microencapsul. (2005) in press.

Souto, E.B., Gohla, S., Müller R.H., A novel approach based on lipid nanoparticles (SLN<sup>®</sup>) for topical delivery of  $\alpha$ -lipoic acid, J. Microencapsul. (2005) in press.

Souto, E.B., Müller, R.H., The use of SLN<sup>®</sup> and NLC<sup>®</sup> as topical particulate carriers for imidazole antifungal agents, Die Pharmazie (accepted).

Xia, Q., Saupe, A., Souto, E.B., Müller, R.H., Nanostructured lipid carriers (NLC) as a novel carrier for sunscreen formulations, Eur. J. Pharm. Biopharm. (accepted).

Weyhers, H., Ehlers, S., Hahn, H., Souto, E.B., Müller R.H., Solid Lipid Nanoparticles (SLN) – Effects of lipid composition on *in vitro* degradation and *in vivo* toxicity, Die Pharmazie (accepted).

Weyhers, H., Löbenberg, R., Mehnert, W., Souto E.B., Kreuter, J., Müller R.H., *In vivo* distribution of <sup>125</sup>I-radiolabelled Solid Lipid Nanoparticles (SLN), Pharm. Ind. (2005) in press.

Souto, E.B., Wissing, S.A., Barbosa, C.M., Müller, R.H., SLN and NLC – Definition and Preparation Methods, Rev. Port. Farm. (submitted).

Souto, E.B., Müller, R.H., Rheological and *in vitro* release behaviour of clotrimazolecontaining aqueous SLN dispersions and commercial creams, Die Pharmazie (submitted).

Souto, E.B., Mehnert, W., Müller, R.H., Polymorphic behaviour of Compritol<sup>®</sup>888 ATO as bulk lipid and as SLN and NLC, J. Microencapsul. (accepted).

Weyhers, H., Lück, M., Mehnert, W., Souto, E.B., Müller R.H., Analysis of plasma protein adsorption patterns by two-dimensional polyacrylamide gel electrophoresis (2-D PAGE), Int. J. Mol. Med. Anal. Sci. (accepted).

Müller, R.H., Runge, S.H., Ravelli, V., Mehnert, W., Souto, E.B., Oral bioavailability of cyclosporine: Solid lipid nanoparticles (SLN<sup>®</sup>) versus drug nanocrystals, Int. J. Pharm (submitted).

Müller, R.H., Runge, S.H., V. Ravelli, Thünemann, A.F., Mehnert, W., Souto, E.B., Cyclosporine-loaded solid lipid nanoparticles (SLN<sup>®</sup>): characterization of drug incorporation, Eur. J. Pharm. Biopharm. (submitted).

Souto, E.B., Müller, R.H., Applications of lipid nanoparticles (SLN and NLC) in food industry, J. Food Ind. (submitted).

#### **Non-refereed Journals:**

Müller, R.H., Souto. E., Gohla, S., Lipid nanoparticles (Nanopearls<sup>®</sup>): A novel cosmetic carrier, SÖFW-Journal 130 (2004) 36-45.

Müller, R.H., Souto, E., Gohla, S., Nanopearls<sup>®</sup> - The novel carrier generation after liposomes, COSSMA 2 (2005) 26-27.

Müller, R.H., Souto, E., Gohla, S., Nanopearls<sup>®</sup> - The novel carrier system for cosmetic application, Eurocosmetics 3 (2005) 22-26.

Souto, E.B., Barbosa, C.M., Müller, R.H., Nanopartículas Lipídicas Sólidas – Uma nova geração de vectores de fármacos, Rev. Bras. Ciên. Farm. (submitted).

## **Book Chapters:**

Rainer H. Müller, Wolfgang Mehnert, Eliana B. Souto, Solid lipid nanoparticles (SLN) and nanostructured lipid carriers (NLC) for dermal delivery, In: Percutaneous Absorption, New York, Basel, Hong-Kong, Bronaugh (Eds.), Marcel Dekker, Inc. 2005, 719-738.

Rainer H. Müller, Eliana B. Souto, Lipid nanoparticles (SLN and NLC) for drug delivery, in: Nanoparticles for Pharmaceutical Applications, Kumar, R., Tabata, Y., Domb, A. (Eds.), American Scientific Publishers, 2005, in press. Rainer H. Müller, Eliana B. Souto, Torsten Göppert, Sven Gohla, Production of biofunctionalized SLN for site-specific drug delivery, in: Nanotechnologies for Life Sciences, Volume 2., Kumar, C., (Eds.), Wiley-VCH Verlag GmbH, Weinheim, 2005, in press.

Eliana B. Souto, Rainer H. Müller, Lipid nanoparticles (SLN and NLC) in cosmetic, dermal and transdermal applications, in: Nanoparticulate Drug Delivery Systems: Recent Trends and Emerging Technologies, Thassu, D., Deleers, M., Pathak, Y. (Eds.), CRC Press (submitted).

#### Proceedings

Souto, E.B., Wissing, S.A., Barbosa, C.M., Müller, R.H., Preparation of clotrimazole-loaded NLC and SLN, Proceed. Int. Symp. Control. Rel., Bioact. Mater. 30 (2003) #321.

Souto, E.B., Wissing S.A., Barbosa, C.M., Müller, R.H., Preparation of topical formulations containing an antimycotic agent, Proceed. Int. Symp. Control. Rel., Bioact. Mater. 30 (2003) #322.

Souto, E.B., Wissing S.A., Barbosa, C.M., Müller, R.H., The use of hydrogels as dermatological vehicles for aqueous NLC dispersions, Proceed. Int. Symp. Control. Rel., Bioact. Mater. 31 (2004) #606.

Souto, E.B., Wissing S.A., Barbosa, C.M., Müller, R.H., Preparation and characterization of ketoconazole-loaded lipid nanoparticles (SLN & NLC), Proceed. Int. Symp. Control. Rel. Bioact. Mater. 31 (2004) #595.

Souto, E.B., Müller, R.H., Barbosa, C.M. Phase behaviour of polymorphic fats based carriers entrapped into carbomer gels, Coimbra Conference - Trends and Challenges in Pharmaceutics, Coimbra, Portugal, 2005, PO-50.

Souto, E.B., Müller, R.H., Barbosa, C.M. Mechanical characterization of NLC-based bioadhesive semi-solids, Coimbra Conference - Trends and Challenges in Pharmaceutics, Coimbra, Portugal, 2005, PO-52.

Souto, E.B., Müller, R.H., Long-term stability of clotrimazole-loaded SLN and NLC, Proceed. Int. Symp. Control. Rel. Bioact. Mater. 32 (2005) #564.

Souto, E.B., Müller, R.H., Texture analysis of SLN and NLC based hydrogels, Proceed. Int. Symp. Control. Rel. Bioact. Mater. 32 (2005) #569.

Teeranachaideekul, V., Souto, E.B., Junyaprasert, V.B., Müller, R.H., Establishment of release model for lipid nanoparticles dispersion, Proceed. Int. Symp. Control. Rel. Bioact. Mater. 32 (2005) #548.

Teeranachaideekul, V., Souto, E.B., Junyaprasert, V.B., Müller, R.H. Size analysis in NLC gels, Proceed. Int. Symp. Control. Rel. Bioact. Mater. 32 (2005) #567.

Göppert, T.M., Souto, E.B., Müller, R.H., Comparison of plasma protein adsorption patterns on solid lipid nanoparticles (SLN) for intravenous drug targeting dependent on their age, Proceed. Int. Symp. Control. Rel. Bioact. Mater. 32 (2005) #547.

Souto, E.B., Teeranachaideekul, V., Junyaprasert, V.B., Müller, R.H. Encapsulation of Nicotinamide into lipid nanoparticles (SLN and NLC), 15<sup>th</sup> International Symposium on Microencapsulation, Parma, Italy, September 18-21, 2005, #102.

### Abstracts

Souto, E.B., Wissing, S.A., Barbosa, C.M., Müller, R.H., Preparation of clotrimazole-loaded solid lipid nanoparticles for topical use, AAPS Annual Meeting and Exposition, Salt Lake City, Utah, USA, 2003.

Souto, E.B., Wissing, S.A., Müller, R.H., Barbosa, C.M., HEC and Carbopol hydrogels containing clotrimazole-loaded SLN, Rev. Port. Farm. LII Suppl. (2003) 25.

Souto, E.B., Wissing, S.A., Müller, R.H., Barbosa, C.M., Incorporation of clotrimazole in SLN - Evaluation of drug-lipid interaction, Rev. Port. Farm. LII Suppl. (2003) 117.

Souto, E.B., Wissing, S.A., Müller, R.H., Barbosa, C.M., NLC as new carrier systems for dermal and cosmetic preparations, Congresso Nacional dos Farmacêuticos, Lisbon 27<sup>th</sup> to 29<sup>th</sup> Nov 2003.

Souto, E.B., Wissing, S.A., Müller, R.H., Barbosa, C.M., Comparative study of the physicochemical properties of SLN and NLC based glyceryl behenate, Congresso Nacional dos Farmacêuticos, Lisbon 27<sup>th</sup> to 29<sup>th</sup> Nov 2003.

Souto, E.B., Müller, R.H., Effect of the emulsifying agent on physicochemical properties of SLN and NLC prepared with glycerol tripalmitate, AAPS Annual Meeting and Exposition, Baltimore, USA, 2004; #M1217.

Souto, E.B., Müller, R.H., Rheological characterization of cellulose ether hydrogels containing  $NLC^{TM}$ , AAPS Annual Meeting and Exposition, Baltimore, USA, 2004, #M1218.

Souto, E.B., Müller, R.H., Topical delivery of ketoconazole by means of lipid nanoparticles (SLN and NLC), EUFEPS 3<sup>rd</sup> World Conference on Drug Absorption, Transport and Delivery, Barcelona, Spain, April 18-20, 2005, PO-122.

Souto, E.B., Radwan, M.A., Müller, R.H., Encapsulation of peptide cyclosporine A into nanostructured lipid carriers (NLC), EUFEPS 3<sup>rd</sup> World Conference on Drug Absorption, Transport and Delivery, Barcelona, Spain, April 18-20, 2005, PO-36.

Souto, E.B., Müller, R.H., Novel controlled release system for topical delivery of ketoconazole, AAPS Annual Meeting and Exposition, Nashville, USA, November 6-10, 2005, #R6088.

Souto, E.B., Müller, R.H., Physicochemical characterization of freeze-dried solid lipid nanoparticles, AAPS Annual Meeting and Exposition, Nashville, USA, November 6-10, 2005, #R6089.

Hommoss, A., Souto, E.B., Müller, R.H., Assessment of the release profiles of a perfume incorporated into NLC dispersions in comparison to reference nanoemulsions, AAPS Annual Meeting and Exposition, Nashville, USA, November 6-10, 2005, #M1238.

Teeranachaideekul, V., Souto, E.B., Junyaprasert, V.B., Müller, R.H., Long-term physical stability of Q10-loaded NLC at different storage conditions, AAPS Annual Meeting and Exposition, Nashville, USA, November 6-10, 2005, #M1255.

Teeranachaideekul, V., Souto, E.B., Müller, R.H., Junyaprasert, V.B., Effect of surfactant on the physical and chemical stability of ascorbyl palmitate-loaded NLC system, AAPS Annual Meeting and Exposition, Nashville, USA, November 6-10, 2005, #M1256.

# **Oral presentation**

"HEC and Carbopol hydrogels containing clotrimazole-loaded SLN", 1º Congresso da Sociedade Portuguesa de Ciências Farmacêuticas, Lisboa, 14 a 16 de Abril, 2003.

# Thesis

Polímeros utilizados na preparação de sistemas de transporte de substâncias activas, Biomateriais, IV Mestrado em Tecnologia Farmacêutica 2002.

Aspectos tecnológicos da preparação de micro e nanopartículas biodegradáveis, Seminário, IV Mestrado em Tecnologia Farmacêutica 2003.

SLN and NLC as drug carriers of clotrimazole for topical formulations, Master Thesis, Faculty of Pharmacy, Oporto University, 2003.