

A Considerable Analysis of Nanostructured Lipid Transporters

Prakash Maurya¹ and Dr. Dharendra Babji Sanghai²

Research Scholar, Department of Pharmacy¹

Associate Professor, Department of Pharmacy²

Sunrise University, Alwar, Rajasthan, India

Abstract: All of the main types of drug delivery systems used in nanoscience have well-established pharmaceutical manufacturing processes, and lipid-containing drug delivery systems, like NLC, are one of them. The many NLC issues and product-related specifications that are crucial for lipid formulations are thoroughly covered in this chapter. Currently, there are many DDS that improve the medications' solubility in a range of media and increase their bioavailability in a variety of settings and situations. NLCs are a unique kind of DDS that may produce concentrated dispersions and are stable in a range of environments. In this chapter, we covered a variety of process factors, NLC manufacturing methods, and responses and their results. NLCs has the ability to modify the pharmacokinetic properties of drug carriers, therefore augmenting therapeutic efficacy, mitigating unfavorable side effects, and improving medication distribution to the intended organ.

Keywords: Nanostructures, Lipid, Examination, Nanotechnology

REFERENCES

- [1]. June IM, Davange RM, Salunkhe KS, Chaudhari SR, Deshmukh PD, et al. (2016) Nanostructured lipid carrier: Novel drug delivery system. J Adv Drug Deliv 3: 7-16.
- [2]. Xia Q, Wang H (2010) Preparation and characterization of coenzymes Q-10 loaded NLC. NSTI-Nanotech 3: 498-501.
- [3]. Nair R, Kumar KSA, Priya KV, Sevukarajan M (2011) Recent advances in solid lipid nanoparticle based drug delivery systems. J Biomed Sci Res 3: 368-84.
- [4]. Shah R, Eldridge D, Palombo E, Harding I (2015) Lipid Nanoparticles: Production, Characterization and Stability. Briefs Pharm Sci Drug Dev 1: 11-23.
- [5]. Riessman C (2010) University of Huddersfield Repository. Narrative, memory and everyday life.
- [6]. Jaiswal P, Gidwani B, Vyas A (2016) Nanostructured lipid carriers and their current application in targeted drug delivery. Artif Cells Nanomed Biotechnol 44: 1-14.
- [7]. Müller R (2000) Solid lipid nanoparticles (SLN) for controlled drug delivery: a review of the state of the art. Eur J Pharm Biopharm 50: 161-177.
- [8]. Radtke M, Müller RH (1991) Nanostructured Lipid Carriers: A novel generation of solid lipid drug drug Carriers. Pharmaceutical Technology Europe 17: 1-4.
- [9]. Peddinti S (2016) Nanostructured lipid carriers as a drug carrier. J Pharm Nanotechnol Nanostruc 4: 68-74.
- [10]. Dubey A, Prabhu P, Kamath JV (2012) Nano structured lipid carriers: A novel topical drug delivery system. Int J PharmTech Res 4: 705-714.
- [11]. Purohit DK, Nandgude TD, Poddar SS (2016) Nano-lipid carriers for topical application: Current scenario. Asian J Pharm 10: 1-9.
- [12]. Charcosset C, El-Harati A, Fessi H (2005) Preparation of solid lipid nanoparticles using a membrane contactor. J Control Release 108: 112-120.
- [13]. Jennings V, Gysler A, Schäfer-Korting M, Gohla S (2000) Vitamin A loaded solid lipid nanoparticles for topical use: occlusive properties and drug targeting to the upper skin. Pharm Biopharm 49: 211-218.

- [14]. Jennings V, Schafer-Korting M, Gohla S (2000) Vitamin A-loaded solid lipid nanoparticles for topical use: drug release properties. *J Control Release* 66: 115-126.
- [15]. Jennings V, Mäder KGS (2000) Solid lipid nanoparticles (SLNTM) based on binary mixtures of liquid and solid lipids: a ¹H-NMR study. *Pharm* 205: 15-21.
- [16]. Jennings V, Gohla S (2000) Comparison of wax and glyceride solid lipid nanoparticles. *Int J Pharm Sci* 196: 219-222
- [17]. Uner M, Yener G (2007) Importance of solid lipid nanoparticles (SLN) in various administration routes and future perspective. *Int J Nano medicine* 2: 289-300.
- [18]. Lopes CPA (2014) Development and Characterization of Lipid Nanoparticles prepared by Miniemulsion Technique.
- [19]. Radtke M, Muller R (2001) Nanostructured lipid drug carriers. *New Drugs* 48-52.
- [20]. Zhang H, Dang Q, Zhang Z, Wu F (2017) Development, characterization and evaluation of doxorubicin nanostructured lipid carriers for prostate cancer. *JBUON* 22: 102-11.
- [21]. Arunkumar N, Deecaraman M, Rani C (2014) Nanosuspension technology and its applications in drug delivery. *Asian J Pharm* 3: 168.
- [22]. Persson LC, Porter CJH, Charman WN, Bergström CAS (2013) Computational prediction of drug solubility in lipid based formulation excipients. *Pharm Res* 30: 3225-3237.
- [23]. Karunakar G, Patel NP, Kamal SS (2016) Nano structured lipid carrier based drug delivery system. *J Chem Pharm Res* 8: 627-643.
- [24]. Soni K, Kukereja BK, Kapur M, Kohli K (2015) Lipid nanoparticles: future of oral drug delivery and their current trends and regulatory issues. *Int J Curr Pharm Rev Res* 7: 1-18.
- [25]. Kaur S, Nautyal U, Singh R, Singh S, Devi A (2015) Nanostructure Lipid Carrier (NLC): the new generation of lipid nanoparticles. *Asian Pacific J Heal Med* 2: 76-93.
- [26]. Uner M (2006) Preparation, characterization and physico-chemical properties of solid lipid nanoparticles (SLN) and nanostructured lipid carriers (NLC): their benefits as colloidal drug carrier systems. *Pharmazie* 61: 375-386.
- [27]. Zirak MB, Pezeshki A (2015) Effect of surfactant concentration on the particle size, stability and potential zeta of beta carotene nano lipid carrier. *Int J Curr Microbiol Appl Sci* 4: 924-932.
- [28]. McEvoy SD, Sittig Dean F, Thu HT, Aaron S, Angela AI, et al. (2016) Variation in high-priority drug-drug interaction alerts across institutions and electronic health records. *J Am Med Informatics Assoc* 24: 331-338.
- [29]. Anuradha K, Kumar S (2014) Development of Lacidipine loaded nanostructured lipid carriers (NLCs) for bioavailability enhancement. *Int J Pharm Med Res* 2: 50-57.
- [30]. Joshi M, Pathak S, Sharma S, Patravale V (2008) Design and in vivo pharmacodynamic evaluation of nanostructured lipid carriers for parenteral delivery of artemether: Nanoject. *Int J Pharm* 364: 119-26.
- [31]. Chen M, Stitt A (2016) Animal Models of Diabetic Retinopathy. *Curr Diab Rep* 17: 67-83.
- [32]. López-García R, Ganem-Rondero A (2015) Solid lipid nanoparticles (SLN) and nanostructured lipid carriers (NLC): occlusive effect and penetration enhancement ability. *J Cosmet* 5: 62-72.
- [33]. Carrier L (2006) Formulation and Evaluation of Nanostructured Lipid Carrier 8: 304-309.
- [34]. Patwekar SL, Pedewad SR, Potulwar AP, Gaikwad MS (2016) Nanostructured lipid carriers in stability improvement for cosmetic nanoparticles. *Int J Pharm Pharm Res* 6: 168-180.
- [35]. Mottalib A, Kasetty M, Mar JY, Elseaidy T, Ashrafzadeh S, et al. (2017) Weight Management in Patients with Type 1 Diabetes and Obesity. *Curr Diab Rep* 17: 92.
- [36]. Board BMA (2006) Reporting adverse drug reactions a guide for healthcare professionals. *BMA Board Sci* 6: 147-158.
- [37]. Fretheim A, Odgaard-Jensen J, Brørs O, Madsen S, Njølstad I, et al. (2012) Comparative effectiveness of antihypertensive medication for primary prevention of cardiovascular disease: systematic review and multiple treatments meta-analysis. *BMC Med* 10: 33.
- [38]. Pallerla SM, Prabhakar B (2013) A review on solid lipid nanoparticles. *Int J Pharm Sci Rev Res* 20: 196-206.

- [39]. Singh P, Gupta RK, Jan R, Raina SK (2017) Original Article Adherence for medication among self-reporting rural elderly with diabetes and hypertension. J Med Soc 31: 86-89.
- [40]. Ravichandar R, Jamuna RR, Varadarajan S (2016) Article Study of adverse drug reactions in a tertiary care teaching hospital. IJBCP 5: 209-212.