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An insight into Cannabidiol *in vitro* release profile from lipid nanocapsules

Juan Aparicio-Blanco
Complutense University School of Pharmacy, Spain

Since recently, many authors in the field of nanomedicine seem to have put the focus on lipid nanocapsules (LNC), nanocarriers consisting of an oily core provided with a surfactant shell. Both their nanometric size and their lipophilic nature may potentially play a key role to enable intravenous administration of lipophilic drug substances. Given the fact that intravenous administration allows release times to be prolonged much longer than with oral administration, the goal to be pursued by means of the present study is to evaluate the aptness of these novel nanocarriers to extend drug release over time, taking cannabidiol (CBD), the main non-psychotropic cannabinoid, as a model of lipophilic drug substance to encapsulate. To that aim, 50 nm-sized CBD-loaded LNCs were developed according to an expanded phase inversion method. Thermo stability of the drug substance under the heating conditions required by the mentioned solvent-free technique and the encapsulation efficiency of the drug-loaded nanocarriers were determined. So as to test the feasibility of LNC to serve as controlled drug delivery systems of CBD, *in vitro* release kinetics assays were performed by a dialysis method, since no centrifugation procedure has proven to date successful in separating nanoparticles from an aqueous medium. Phosphate buffer solution pH 7.4 added with polysorbate 80 was chosen as release medium in order to mimic physiological conditions with the highest accuracy and to ensure sink conditions by enhancing CBD solubility in water. Our results revealed that LNC efficiently extend CBD release at least over fifteen days under the assayed conditions.

Biography

Juan Aparicio-Blanco is a PhD student graduated in Pharmacy at Complutense University (Madrid) with Best Academic Record Award at the Faculty of Pharmacy and specialized afterwards in the field of Pharmaceutical Technology. He is a Researcher in the project 'Design of novel brain-targeted anticancer-loaded nanocarriers to handle most troublesome brain tumors' at the Pharmaceutical Technology Department. He is the Researcher in Institute of Industrial Pharmacy, Complutense University of Madrid, Spain. His Pre-Doctoral Fellow is granted by the Spanish Ministry of Education and Culture (FPU13/02325).

juan.aparicio.blanco@ucm.es

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