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Reduction of SKOV-3 cells viability induced by CBD: *In-vitro* evaluation and design of PLGA multiparticulate systems loaded with CBD

Ana Isabel Fraguas Sánchez, Ana María Fernández Carballido and Ana Isabel Torres Suárez
Complutense University of Madrid, Spain

Cannabidiol (CBD), the main non psychotropic cannabinoid present in *Cannabis sativa* plant, has emerged in the last decades as potential anticancer drug, due to its ability to inhibit cancer cell proliferation, adhesion, migration and invasion of several kind of tumors such as breast and prostate cancer. Nevertheless, the stability problems of CBD and its high liposolubility, difficult the development of an effective formulation with this compound. Microencapsulation may resolve these questions and also may improve the antitumor activity of CBD. The aim of this work was (i) to determine the antiproliferative effect of CBD in ovarian cancer, using SKOV-3 cell line as model and evaluating the induction of apoptosis and generation of ROS and (ii) to develop biodegradable microparticles (MPs) loaded with CBD for intraperitoneal administration. SKOV-3 cell viability were determined by MTT assay and apoptosis and ROS generation by flow cytometry. MPs were elaborated by emulsification-evaporation technique, using poly-D, L-lactide-co-glycolide (PLGA) as polymer. CBD demonstrated an antiproliferative effect in SKOV-3 cells, with an inhibitory concentration 50 (IC₅₀) of 21.43 μM after 48 hours of incubation, exerting a pro-apoptotic effect. However, the generation was not observed, rather, CBD showed an antioxidant activity. Developed Mps were spherical, showing a non-porous and uniform surface, and a high drug loading and entrapment efficiency. The particle size (expressed as volume diameter) was of 28.57 μm.

Biography

Ana Isabel Fraguas Sánchez has completed her Pharmacy degree in 2012 at Complutense University of Madrid. In 2013 she completed her Master's degree in Pharmacy and Pharmaceutical Technology, with an experimental study entitled "Development of Cannabidiol Microparticles". Currently, she is a PhD student at Complutense University. In 2014, she got a research Fellowship from Education Ministry of Spain and has published several papers related with cancer diseases.

anaisabelfraguas@gmail.com

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