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## Development of cannabidiol-loaded poly(D, L lactide-co-glycolide) nanoparticles and their evaluation in MDA-MB-231 breast cancer cell line

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Cannabidiol (CBD) is the major non-psychotropic cannabinoid presents in *Cannabis sativa* plant. It has proved to have a potential therapeutic utility in several kinds of tumors, due to its ability to inhibit or reduce the proliferation, adhesion, migration and invasion of cancer cells and to induce apoptotic effects. Breast cancer is one of the tumors where CBD has shown a high anticancer activity. However, despite its potential clinical interest it is difficult to develop an effective formulation with CBD because it has a low aqueous solubility and several stability problems. Systems as nanoparticles (NPs) may resolve these questions, and also may increase antitumor activity of cannabidiol. The aim of this work was to develop biodegradable nanospheres loaded with CBD for parenteral administration for the treatment of breast cancer. NPs were elaborated using poly-D, L-lactide-co-glycolide resomer (PLGA 502') by nano-precipitation technique and were characterized in terms of morphology, particle size, zeta potential, drug loading, entrapment efficiency and *in vitro* drug release. Formulations with 10% and 20% of CBD were prepared. Spherical, nonporous and uniform NPs were obtained, showing a particle size below 200 nm and a high drug loading and entrapment efficiency. The antitumor activity was also evaluated *in vitro* using MDA-MB-231 cell line as a model of breast cancer.

### Biography

Ana Isabel Fraguas Sanchez has completed her Pharmacy degree in 2012 at Complutense University of Madrid. In 2013, she finished a 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 and she has published several papers related with cancer diseases. She is the President of the Spanish Chapter of American Association of Pharmaceutical Scientist (AAPS).

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