Encontro de Saberes 2017 - II Mostra da Pós-Graduação

DEVELOPMENT AND CHARACTERIZATION OF NANOCAPSULES AND NANOEMULSIONS CONTAING ARTEMETHER AND DHA FOR CANCER THERAPHY

ELISA GOMES LANNA (Autor), Renata Tupinambá Branquinho (Co-Autor), Vanessa Carla Furtado Mosqueira (Orientador)

Instituição de Ensino - Universidade Federal de Ouro Preto

Palavras Chaves:

nanoparticles, artemether, DHA

Resumo:

Introduction: Some antimalarials agents, like artemether (ART), has shown anticancer activity in vitro and in vivo. However, the low water solubility, poor bioavailability, and a short half-life in vivo (~3-5h) are the pharmacological shortcomings of ART. Some studies has shown that DHA reduced the cancer cell growth. One strategy to overcome these challenges is the encapsulation of ART to improve the activity against cancer cells using the sustained release system with DHA. Aim: The aim of this study was the development and characterization of nanocapsule (NC) and nanoemulsion (NE) containg ART and DHA, in order to carry out a comparative study of the association capacity of ART and DHA with different these nanocarriers. Methods: ART/DHA nanocapsules (NC-ART/DHA) were prepared by nanoprecipitation method and the ART/DHA nanoemulsions (NE-ART/DHA) were prepared by spontaneous emulsification method. The mean diameter, zeta potential and polydispersity index (PdI) were determined in triplicate by dynamic light scattering. Entrapment efficiency (EE) was determined by ultrafiltration/centrifugation technique. The nanoparticles were also evaluated for colloidal stability during 90 days storage in relation of size and PdI. Results: Both nanocarriers were monodispersed (PdI<0.2). The mean diameter of NC-ART/DHA was 163.3 ± 0.888, with negative zeta potential of –27.4 ± 2.36 mV and 76.90% of EE. Similarly, the mean diameter of NE-ART/DHA was 168.1 ± 0.818, with zeta potential of -39.5 ± 1.79 mV and the EE of ART was 78.84%.The formulations with ART and DHA were stable by 90 days, with no significant differences of size and PdI. Conclusion: The results demonstrated that the NC and NE are interesting systems to co-encapsulate ART and DHA, with high encapsulation efficiency and stability.

Publicado em:

- Evento:Encontro de Saberes 2017
- Área:CIÊNCIAS DA VIDA
- Subárea:NANOBIOTECNOLOGIA