The use of polymeric nanoparticles for administering photosensitizer compounds such as methylene blue represents a promising option for cancer treatment. In this study, methylene blue is encapsulated into nanoparticles of poly-dl-lactic-co-glycolic (PLGA) polymer by using two formulation techniques. PLGA nanoparticles loaded with methylene blue (MB-NP) are prepared by using simple and double emulsification-solvent evaporation techniques. Studies of dynamic light scattering (DLS) and laser Doppler electrophoresis are performed to determine size, polydispersity and zeta potential. In vitro studies are conducted to determine the kinetics of release of methylene blue from nanoparticles. MB-NP show an average size ranging from 180-220nm depending on methylene blue loading, displaying an average zeta potential of -23mV from all formulations. Release kinetics show that due to its hydrophilic property, methylene blue release occurs in a period of less than 72 hours. Future work includes in vitro and in vivo studies including photodynamic therapy.

Keywords: polymeric nanoparticles, photosensitizer compounds, methylene blue

References:


Presenting author’s email: cindya.gutierrez@yahoo.com