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Development and in vitro evaluation of γ -aminobutyric acid loaded copolymeric nanoparticles for epilepsy treatment

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Epilepsy is one of the most common neurological diseases worldwide. Blockage in release of γ -aminobutyric acid (GABA) or postsynaptic reaction were determined to provoke epileptic convulsions. Low GABA concentrations in brain were seen in variety of epileptic syndromes. Targeting of active agents in the brain is one of the challenging issues for the epilepsy, as many hydrophilic drugs and neuropeptides are unable to cross the blood-brain barrier. To increase the entry and persistence of GABA in the epileptic brains, incorporation of GABA into unique copolymeric nanoparticles prepared with reverse emulsion polymerization method was aimed in this study. In other words, development of brain-targeted, nanosized, nontoxic, biocompatible, highly specific and high affinity formulations was the purpose of the study. In this study, GABA was successfully incorporated into unique copolymeric nanoparticles prepared via polymerization of acrylamide or N,N-dimethylacrylamide. In vitro characterization studies including particle size, zeta potential measurement, DSC, XRD, FTIR analysis, drug loading and in vitro release studies were performed on copolymeric nanoparticles prepared.

Biography

Gulsel Yurtdas Kirmlioglu got her Msc on "Inclusion complexes with antifungal agents" in 2010. She had completed her PhD study "Nanosized drug delivery system interfering epileptic mechanism" in 2014. Since 2008 she has been working as a Research Assistant at the Department of Pharmaceutical Technology at Anadolu University. Her researches focuses on novel technologies to enhance drug delivery.

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