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Release characteristicsof gaba loaded halloysite nanotube system: Investigation on the seizure parameters in epileptic rats

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Gamma aminobutyric acid (GABA), serves as the major inhibitory neurotransmitter, has a central role in neural control. Inhibition of GABA synthesis, blockage of release or postsynaptic reaction were determined to provoke convulsions. Significant reductions in brain GABA concentration were seen in patients with different epileptic syndromes. Several new approaches are being developed in an attempt to increase the entry and persistence of antiepileptic agents in the brain. One of the main strategy is nanosized drug delivery systems for the treatment of epilepsy. Halloysite nanotubes (HNT) is natural aluminosilicate clay with hollow tubular structure which allows loading drugs inside nanotubes lumens. In this study, GABA was successfully incorporated into HNT depending on the most recent epilepsy theory related to GABA. Characterization, drug loading, *in vitro* release studies and cytotoxicity test were performed on HNTs. Anticonvulsant effect of drug loaded HNT system were evaluated using pentylenetetrazole induced epileptic rats for *in vivo* studies. The latency to myoclonic jerks and incidence of generalized tonic clonic seizures with loss of righting reflex were noted as seizure parameters.

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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