

## Targeted delivery of Rivastigmine loaded PLGA nanoparticles into the brain for treating Alzheimer's disease

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The purpose of the present study was to investigate the possibility of targeting an anti-Alzheimer's drug Rivastigmine in the brain using polymeric nanoparticles. Central nervous system drug efficacy depends upon the ability of a drug to cross the blood-brain barrier and reach therapeutic concentrations in brain following systemic administration. Rivastigmine being a hydrophilic drug it unable to cross the blood brain barrier. Due to its highly soluble nature in water and organic solvents the dual nature of Rivastigmine tatarate makes its incorporation into NP an interesting challenge, as the drug must not leak out from its initial dissolved phase upon precipitations of the polymer chains to form the nanoparticles. The Rivastigmine loaded PLGA nanoparticles was prepared by adopting modified nanoprecipitation method by varying polymer concentration the outer aqueous phase in the formulation. The prepared nanoparticles were characterized for FT-IR, particle size distribution, polydispersity index, Zeta Potential by Zeta Sizer, Particle morphology and selected area electron diffraction pattern (SAED) by Transmission electron microscopy (TEM), drug entrapment and *in vitro* drug release. The FT-IR results conformed the absence of drug polymer interaction, particle size distribution shows the range from 30-140nm, TEM studies indicated that the nanoparticles were in spherical, drug entrapment of PLGA Nps containing pH.9.0 as outer phase showed 55%, TEM Selected area diffraction pattern indicated that Rivastigmine was dispersed in amorphous form and *in vitro* drug studies showed 45% release from PLGA Nps in 12 hrs. The sustained effect of Rivastigmine was obtained from the Rivastigmine formulations may improve the targeting efficiency to brain.

### Biography

Tamilselvan N has obtained his B.Pharm and M.Pharm from The Tamilnadu Dr.M.G.R Medical University Chennai. at present he is working as a research scholar and his area of interest is nanoparticulate drug delivery to brain for Alzheimer's disease. He has published four research papers in various international journals to his credit. And he has attended various national conferences and presented research papers.

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