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## **Efficacy of Polymeric Nanoparticles in Management of Neurodegenerative Disorders via Encapsulation with PLGA Particles**

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Nanoparticles could potentially transfigure management for neurodegenerative diseases which implies the application of neurotrophic factors to amend neuronal survival and synaptic connectivity and thus promising therapeutic approach for many diseases, however, due to limitations posed by the restrictive blood brain barrier (BBB), it is very difficult to ensure long-term administration in the brain. Here in this study L-DOPA-loaded PLGA- NPs were fabricated by an emulsification/solvent diffusion method. The 6-OHDA-induced rat model (400 mg/kg) was utilized to investigate the efficacy of nano-DOPA in a set of behavioral tests like placing task, footfault asymmetry test etc. Statistical analysis by ANOVA was done for about five weeks which concludes that nano-DOPA preparation administered intranasally in the dose of 0.35 mg/kg (by L-DOPA) significantly improved the motor function in rats with 6-OHDA PD model when compared with control group, non-treated group, L-DOPA group as well as L-DOPA+inh group throughout the whole treatment period and holds potentiality for chronic administration in the clinical practice of the PD therapy.