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(54) Title of the invention : FIXED-DOSE LIPID NANOPARTICLES FOR OLFACTORY BRAIN DELIVERY IN EPILEPSY TREATMENT

<p>(51) International classification :A61K0009000000, A61P0025080000, A61K0009510000, A61K0031550000, A61K0009160000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No :NA Filing Date :NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : 1)Ms. Shikha Address of Applicant :Assistant Professor, Shaheed Bhagat Singh College of Pharmacy Palampur, Tanda Parla, Palampur, Himachal Pradesh 176061 ----- 2)Ms. Prabha Manjari 3)Dr. Preeti Garg 4)Mr. Rachit Shukla 5)Mr. Monu kumar 6)Ms. Anupama Kumari 7)Ms. Sumita Nirban 8)Ms. Neha Mishra 9)Dr. Priyanka Yadav 10)Mrs. Piyali Khamkat Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Ms. Shikha Address of Applicant :Assistant Professor, Shaheed Bhagat Singh College of Pharmacy Palampur, Tanda Parla, Palampur, Himachal Pradesh 176061 ----- 2)Ms. Prabha Manjari Address of Applicant :Assistant Professor, Dr Ram Manohar Lohiya University, Institute of Pharmacy, Ayodhya, Uttar Pradesh, Pin Code: 224001 ----- 3)Dr. Preeti Garg Address of Applicant :Assistant Professor, Hindu College of Pharmacy Sonipat, Haryana, Pin Code: 131001 ----- 4)Mr. Rachit Shukla Address of Applicant :Assistant Professor, One Beat College of Medical Sciences, Bhira, Lakhimpur Kheri, Uttar Pradesh, Pin Code: 262901 ----- 5)Mr. Monu kumar Address of Applicant :Associate Professor, Doon Valley Institute Of Pharmacy And Medicine Karnal, Haryana, Pin Code: 132001 ----- 6)Ms. Anupama Kumari Address of Applicant :Ph.D Research Scholar, School of Pharmacy and Emerging Sciences, Baddi University of Emerging Sciences & Technology, Makhnumajra, Baddi, Himachal Pradesh, Pin Code: 173205 ----- 7)Ms. Sumita Nirban Address of Applicant :PhD Research scholar, Central University of Haryana, Mahendergarh, Haryana, Pin Code: 123029 ----- 8)Ms. Neha Mishra Address of Applicant :Assistant professor, IEC college of Engineering and Technology, Greater Noida, Uttar Pradesh, Pin Code: 201310 ----- 9)Dr. Priyanka Yadav Address of Applicant :Associate Professor, R.K. College of Pharmacy [Under Aktu], Near Bokhara -Faridpur Road Bareilly, Uttar Pradesh, Pin Code: 243001 ----- 10)Mrs. Piyali Khamkat Address of Applicant :Associate Professor, Department of Pharmaceutical Technology, Brainware University, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Barasat West Bengal, Pin Code: 700125 -----</p>
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(57) Abstract :

The present invention relates to a novel pharmaceutical composition comprising fixed-dose lipid nanoparticles designed for intranasal, olfactory-targeted delivery of anti-epileptic drugs, specifically carbamazepine. The formulation utilizes a blend of solid (glyceryl monostearate) and liquid (caprylic/capric triglyceride) lipids, along with stabilizers like Poloxamer 188 and lecithin, to form nanoparticles with a mean size of approximately 145 nm and a zeta potential of -32 mV. This delivery system enables direct nose-to-brain transport, effectively bypassing the blood-brain barrier and enhancing brain bioavailability. The composition exhibits high drug entrapment efficiency (>89%), sustained release over 24 hours, and mucosal pH compatibility (5.5–6.5), ensuring safety and patient comfort. The invention addresses limitations of conventional epilepsy therapies by providing faster onset of action, reduced systemic exposure, and improved therapeutic outcomes through a non-invasive, scalable, and patient-friendly route.

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