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Development of Piroxicam Loaded Nanostructured Lipid Carriers for Spondylitis Treatment

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Aim of this work was to prepare and characterize Piroxicam (Prx) loaded nanostructured lipid carriers (NLC) for the treatment of spondylitis. NLCs were prepared by microemulsion technique followed by solidification through ice bath. Piroxicam-nanostructured lipid carrier (PNLCs) prepared under optimum conditions were found to be homogenous, and round with smooth surface. The mean particle size was determined to be 198.1 nm, entrapment efficiency to be 79.69±0.5% and zeta potential to be −22.4 mV, respectively. The *in-vitro* release profile of optimized formulation showed sustained release which was best explained by Higuchi's equation. Through permeation studies it was confined that PNLC showed a higher localization in skin as compared to conventional gel of picroxicam. A preliminary *in-vivo* study in Wistar albino rats showed prolonged anti-inflammatory activity (18% inhibition) upto 24 hr while the standard (marketed picroxicam gel) showed diminished activity (3%) upto 24 hr. These results revealed that PNLCs may serve as a promising carrier to increase therapeutic efficacy for the treatment of spondylitis.

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