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DEVELOPMENT AND CHARACTERIZATION OF FENOFIBRATE SELF-MICROEMULSIFYING DRUG DELIVERY SYSTEM (SMEDDS) FOR BIOAVAILABILITY ENHANCEMENT

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Fenofibrate is lipid regulating agent, which is insoluble in aqueous solution and bioavailability after oral administration is low. The objective of present work was to develop a self-microemulsifying drug delivery system (SMEDDS) to enhance the oral bioavailability of poorly water soluble fenofibrate. SMEDDS is a mixture of oil, surfactant, and cosurfactant, which are emulsified in aqueous medium under gentle digestive motility in the gastrointestinal tract. Psuedoternary phase diagrams were constructed to identify the efficient self-emulsifying region. A SMEDDS were further evalauted for its percentage transmittance, emulsification time, drug content, phase separation, globule size, zeta potential, pH, refractive index, X-ray diffraction, Differential scanning calorimetry and *in vitro* dissolution studies. Optimized formulation was also compared with marketed product in male sprague dawley rats. The pharmacokinetic study exhibited 1.87 fold increase in the oral bioavailability of fenofibrate SMEDDS compared with the marketed product.

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