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Design and Evaluation of Self-Microemulsifying Drug Delivery System (SMEDDS) of Naproxen

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***SUMMARY*. The objective of the present investigation was to formulate self-microemulsifying drug delivery systems (SMEDDS) of naproxen, a poorly water soluble immunosuppressant that exhibits low bioavailability. Solubility of naproxen in various oils, surfactants and cosurfactants was determined. Phase diagrams were constructed at different ratios of surfactant/cosurfactant (Km) to determine microemulsion existence region. The effect of oil content, dilution, and incorporation of drug on mean droplet size of resulting microemulsions was studied. The optimized SMEDDS formulation was evaluated for *in vitro* dissolution profile in comparison to pure drug and marketed formulation. Area of o/w microemulsion region in phase diagram was increased with increase in Km. The SMEDDS yielded microemulsion with droplet size less than 50 nm which was not affected by the pH of dilution medium. Optimized SMEDDS exhibited superior *in vitro* dissolution profile as compared to pure drug and commercial capsules.**

KEY WORDS: Naproxen, Pseudoternary phase, SMEDDS.

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