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SNEEDs formulation of Budesonide to improve its solubility: Optimization and *in vitro* release studies

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Self-micro/nanoemulsifying drug delivery systems (SNEEDs) consist of anisotropic mixture of oil, surfactant and co-surfactant. These systems are prepared at room temperature with gentle stirring process without using any other component or heating process and become micro-/nano-emulsion form upon gentle agitation in aqueous phase. Digestive motility helps in the formation of SNEEDs in gastrointestinal tract. SNEEDs improve oral bioavailability by increasing drug solubility and enhancing permeation through membranes. The aim of this study was to design SNEEDs formulation based on Quality by Design approach and comparison of new SNEEDs formulation with conventional tablet dosage form. Budesonide was selected as a model drug because of its low solubility and poor bioavailability. Labrafac Lipophile WL1349, Labrafac PG and Peceol were selected as oil phase; Labrasol, Labrafil M2125 were selected as surfactant and PlurolOleique and Transcutol were selected as co-surfactant. For each combination of SNEEDs ternary phase diagrams of surfactants, co-surfactants and oils were constructed to recognize the zone of nanoemulsion formation. Forty-eight samples were prepared and for each sample oil and surfactant:co-surfactant ratio was mixed in ratios ranging from %10:90 - %90:10. Each formulation was evaluated based on their physicochemical characteristic such as droplet size and polydispersity index values and formulations which contain Peceol as oil phase, Labrasol as surfactant and Transcutol as co-surfactant were chosen. To have an idea about the fate of the formulation in GIT *in vitro* release studies have been performed. Based on *in vitro* release data, the optimum SNEEDs formula of Budesonide was selected.

Biography

Yildiz Ozsoy is currently a Professor of Pharmaceutical Technology at Faculty of Pharmacy, Istanbul University, Turkey. She has completed her PhD in 1989. She became a Lecturer at Istanbul University, Faculty of Pharmacy in 1992. She has also worked as a Visiting Scientist at Aston University and School of Pharmacy during 2005-2006 and 2007-2008. She has published more than 50 papers in peer reviewed journals and 10 book chapters in international books. She has given about 100 oral and poster presentations in international conferences. Her research focuses on the enhancement of nasal and transdermal permeation of drugs with micellar nanocarriers and the development of innovative controlled release systems, nasal and transdermal delivery carriers.

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