OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Pharmaceutical Regulatory Affairs

November 23-24, 2012 Hyderabad International Convention Centre, India

Preparation and characterization of self-emulsifying drug delivery system (SEDDS) of indomethacin

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Indomethacin, a poorly soluble and highly permeable non-steroidal anti-inflammatory drug, used to reduce pain, swelling involved in osteoarthritis, rheumatoid arthritis and ankylosing spondylitis. Indomethacin shows low and erratic oral bioavailability due to poor solubility. The main purpose of this work was to develop self emulsifying drug delivery system (SEDDS) to enhance oral bioavailability of indomethacin. SEDDS is mixture of oils, surfactants, and co-surfactants, which are emulsified in aqueous media under conditions of gentle agitation and digestive motility that would be encountered in the gastro-intestinal (GI) tract. Solubility of indomethacin was determined in various vehicles. Pseudoternary phase diagrams were constructed to identify the efficient self-emulsifying region. Based on solubility and Isotropicity studies and emulsifying ability labrafil, cremophor EL and transcutol P were selected as oil, surfactant and co surfactant respectively. The developed SEDDS were evaluated for its percentage transmittance, assay, phase separation study, droplet size analysis, zeta potential, turbidity, viscosity and *in vitro* release studies. *In vitro* release studies were carried by using USP dissolution apparatus XXIV-Type II. Anti-inflammatory studies were conducted in Wistar strain male albino rats by using optimized formulation, drug suspension and marketed product. Optimized formulation showed significant anti-inflammatory activity than the drug suspension and marketed product. Our studies illustrated that the developed SEDDS is potential alternative for the immediate delivery of hydrophobic compounds such as indomethacin by oral route.

Biography

Damineni Saritha has completed her M. Pharm from VL College of Pharmacy, Raichur (Rajiv Gandhi University of Health Sciences). She is doing Ph.D in the area of "Self emulsifying drug delivery systems" in centre for pharmaceutical sciences, JNTUH, Hyderabad. She has published 8 papers in reputed journals and also presented 12 papers in various national and international conferences. She is Life Member of APTI.

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