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Self nanoemulsifying drug delivery system of olanzapine for enhanced oral bioavailability: *In vitro*, *In vivo* Characterisation and IVIVC

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Lipid based self nanoemulsifying drug delivery system (SNEDDS) was explored to improve the oral bioavailability of olanzapine, a poorly water-soluble drug candidate, using spontaneous emulsification method. Nanoemulsions have ability to enhance the oral bioavailability of poorly water soluble or lipophilic drugs through selective lymphatic pathways. Following optimization, (from pseudo ternary phase diagram) OLZ SNEDDS consisting of Capryol 90(36.2%), Brij 97(14.6%) and ethanol (42.5%) were selected. The globule size (90 nm), and polydispersity index (0.287), was found to be minimum. The pharmacokinetic study was conducted on rabbits and the parameters like peak concentration (C_{max}), time of peak concentration (T_{max}), etc. was evaluated by Wagner nelson method. The *In vivo* studies concluded that there was 1.3 fold and 1.6 fold increase in bioavailability of nanoemulsion when compared with marketed tablet formulation and drug suspension, respectively. This may be attributed to increased solubility and enhanced permeability of the drug from nanosized emulsion. From the similarity factor between biorelevant dissolution media and 0.1N HCl (pH 1.6) it was concluded that the 0.1N HCl (pH 1.6) can be used for the dissolution of SNEDDS to predict the *In vivo* bioavailability instead of the biorelavent media. The level A correlation with correlation factor 0.97 was achieved, which showed that there is a good correlation between *In vitro* dissolution and *In vivo* bioavailability and the dissolution studies can be used as a surrogate for the *In vivo* studies.

Biography

Raman Sureshkumar completed Master of Pharmacy from JSS college of Pharmacy, Udhagamandalam. He is currently pursuing Ph.D. from JSS University, Mysore. He has published more than 6 papers in reputed journals. He has filed for 2 Indian patents. Currently, he is working as a Assistant Professor, Department of Pharmaceutics, JSS College of Pharmacy.

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