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## E-Pharmaceutica- lipid digestion media (lipolysis) an effective tool for the prediction of fate of the drug in gastrointestinal tract from lipid based drug delivery system

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Nanoemulsion preparation was optimized initially by performing solubility study of the drugs atorvastatin, fenofibrate and olanzapine in different oils. From the solubility studies, the oil in which the drug showed maximum solubility is oleic acid for atorvastatin and capryol90 for fenofibrate and olanzapine. Nanoemulsions were formulated and subjected to lipolysis study. The fate of drug in GIT was estimated by *in vitro* lipolysis model. Precipitation of atorvastatin with oleic acid was observed which indicated that the lipid phase is not suitable for nanoemulsion formulation of the drug. Hence the oil which showed the next highest solubility of atorvastatin was selected and NE was formulated, which showed no sign of precipitation during lipolysis analysis and about 96.84% of drug in the aqueous layer, indicating that the lipid phase is suitable for nanoemulsion formulation of the drug. The lipolysis study of fenofibrate and olanzapine in capryol 90 showed no sign of precipitation about 88% and 92.28% of drug in the aqueous layer at the end of lipolysis for fenofibrate and olanzapine respectively, which indicated that the lipid phase is suitable for nanoemulsion formulation of respective drugs. Those formulations which passed the thermodynamic stability tests and dispersibility tests were subjected to droplet size analysis, PDI and zeta potential. The formulations with formulation code 8 with 25% oil (labrafac lipophile) solubulized by 32% SCoS and formulation code 16 with 25% oil (capryol 90) solubilized by 43.75% SCoS could be selected for drug incorporation and *in vitro* and *in vivo* studies.

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## Potential application of carbon nanotubes for cancer targeting therapy

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Since last decades, carbon nanotubes (CNTs) are frequently used as a potential nanomaterial in several fields including biological, chemical, and electrical field. But recently, CNTs are used in biomedical field as a potential drug carrier due to its unique mechanical, electronic and thermal properties. Many research studies showed, it can be used as a successful targeting carrier in several live threatening diseases such as cancer. Presently, cancer is a major cause of death in all across the world. In every year several million patients are dying due to cancer. From the literature, currently CNTs are most approaching cancer targeting drug carriers in several cancer treatment including lung, liver, and brain cancer therapy. CNTs are self playing as diagnostic role during therapy. It was found that as a targetting drug carrier, CNTs have various extraordinary features including, the ability of targeting moieties at specific locations in the body, the ability of reducing the quantity of drug that needs to be delivered to attain a therapeutic concentration level for the treatment of disease, and the ability of decreasing the concentration of the drug at non-target sites which makes them potential drug carriers. Additionally, CNTs have emerged as fascinating materials, exhibiting promising potential in receptor based targeting owing to their unique physicochemical properties (cell membrane penetration, high surface area and drug payload, biocompatibility, easy surface modification, photoluminescence property, and non-immunogenicity etc). Several imaging modalities are used for the *in-vitro* and *in-vivo* diagnostic estimation. Various biomolecules have been easily tethered to CNTs surfaces including proteins and amino acid, enzymes, nucleic acid (DNA and siRNA), aptamers, vitamins, monoclonal antibodies, peptides (NGR, RGD and Aniopep-2) and so on, for targeting purposes. After the attachment of these agents to the CNTs, it can prospectively target cancer cells and treat them very easily.

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