

The novel modified approaches for enhancement of bioavailability of poorly water-soluble drugs

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The oral drug delivery systems are the most preferable route of drug administration for treatment of diseases. The drugs having poor bioavailability have the choice of other routes of administration for treatment and poor bioavailability has necessitated the administration of higher than normally required oral doses which often leads to economic wastages, risk of toxicity, erratic and unpredictable responses. The design of dosage forms in terms of prodrugs, act as to bypass metabolism or to enhance solubility as well as modification of formulation techniques such as the use of additives, permeation enhancers, solubilizers, emulsifiers and non-aqueous vehicles. The other pharmaceutical applications i.e. nanotechnology, which offers a means of providing novel formulations for existing marketed drugs and new drug candidates with poor water solubility. A prodrug represents a non specific chemical approach to mask undesirable drug properties such as limited bioavailability, lack of site specificity and chemical instability. Nanocrystal formulations shrink the drug's particle size thus increasing the surface area and enhancing dissociation.

These technologies are based on drug carriers and include the formulations like micelles, nanoparticles, nanogels, nanoemulsions, liposomes, nanofibres, polymer therapeutics and nanodevices. Gastroretentive systems designed to enhance local action in the stomach for drugs such as antacids, misoprostol, certain antidotes and antibiotics. The other technology of enteric coating has been used for many years effectively to delay the release of active ingredients in drug formulation until it reaches the small intestine.

Biography

Dr. Abhishek Kumar Jain has completed his Ph.D at the age of 30 years from Department of Pharmaceutical Science, M. L. Sukhadia University, Udaipur, Rajasthan, India. He is the Associate Professor and HOD Pharmaceutics in Sagar Institute of Research and Technology, Bhopal (M.P.). He has published 16 papers and 2 has accepted in reputed journals and serving as an editorial board member and reviewer of reputed 3 journals.

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