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Nanostructured lipid carriers: A novel Carrier for drug delivery

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New drugs can be tailor-made by biotechnological methods & all the new drugs require a suitable carrier system to deliver them to the particular area in an optimized way. Intensive research is going on for the potential application of different polymer based nanoparticles. To overcome problems generated by polymeric nanoparticles (e.g. lack of large scale production), different nano lipid based carrier system were developed. This paper describes the new generation of lipid carriers – NLC with the various advantages of them as a carrier.

A new generation of nanostructured lipid carriers (NLCs) consisting of a lipid matrix with a special nanostructure has been developed. This nanostructure improves drug loading and firmly incorporates the drug during storage. These NLCs can be produced by different easy way and the process can be modified to yield lipid particle dispersions with solid contents from 30–80%. The new concept for the production of NLC, especially very different lipid molecules are mixed, i.e. blending solid lipids with liquid lipids (oils).The resulting matrix of the lipid particles shows a melting point depression compared to the original solid lipid but the matrix is still solid at body temperature. These lipid nanoparticles modify drug release, body distribution and kinetics of associated drugs. Other applications of NLCs are tissue/cell targeting of drugs and reduction of unwanted side effects by controlled release. NLC has the higher efficiency of encapsulation and slower rate of drug release. Oral, topical, parenteral type of drugs can be incorporated in the NLC structure Thus the modified NLC is a potential & effective carrier system for drug delivery.

Key words: Drug delivery, Biotechnology, Nanoparticles, Nanostructured lipid carrier.

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