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Formulation and Evaluation of Ciprofloxacin Nanoemulsions – An advanced drug delivery system

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Abstract

A surfactant coating stabilises the thermodynamically metastable colloidal dispersions known as nanoemulsions, which are made up of two immiscible liquid phases (oil and water). These systems, which are distinguished by nanometric droplet sizes (20–200 nm), have improved optical isotropy and kinetic stability. For pharmaceutical and cosmetic applications, the decreased droplet dimensions improve the solubilisation and bioavailability of lipophilic substances by increasing the interfacial area. To maximise therapeutic efficacy, nanoemulsions can be designed for targeted distribution and controlled release of active medicinal components. Formulation entails using emulsification techniques and choosing the right surfactants. The stability and performance of the system are determined by important characteristics such as zeta potential, droplet size, and polydispersity index.

Keywords- Stability, Droplet size, Surfactant, Drug delivery system, Nanoemulsion, Colloidal dispersion.

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