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Niosomes: The Next Wave in Smart Drug Delivery

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Abstract: *Because of their capacity to improve drug stability, bioavailability, and targeted delivery, niosomes—novel, non-ionic surfactant-based vesicular systems—have drawn a lot of attention in contemporary pharmaceutical research. This review outlines the basic characteristics of niosomes, including their composition, structure, and different preparation techniques like thin- film hydration, ether injection, and reverse-phase evaporation. Various niosome types and delivery strategies are discussed to highlight their adaptability in encapsulating both hydrophilic and lipophilic drugs. Their therapeutic potential in fields like cancer, infectious illnesses, immunotherapy, and transdermal drug delivery is demonstrated by the variety of applications, which range from regulated and sustained release to site- specific delivery. Niosomes continue to be a viable and affordable platform for upcoming medicinal discoveries despite some formulation difficulties. The goal of this review is to present a thorough grasp of their development, design, and therapeutic value.*

Keywords: Niosomes, Drug Delivery System, Non-ionic surfactant vesicles, Encapsulation efficiency, Targeted delivery

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