Liposome design for drug delivery

Introduction: Liposome are simple, the applicability of drugs is always a compromise between their therapeutic effect and side effects. Liposomal drug delivery systems not only enable the delivery of higher drug concentrations, but also a possible targeting of specific cells or organs. Like all other carrier systems, the use of liposomes in drug delivery has advantages and disadvantages. The amphiphilic character of the liposomes, with the hydrophobic bilayer and the hydrophilic inner core, enables solubilization or encapsulation of both hydrophobic and hydrophilic drugs. Materials and methods: In this study, a potential drug delivery system has been designed, synthesized and characterized. liposomes were prepared by lipid layer hydration method and compounds, including cholesterol, chloroform, Egg-yolk lecithin (EPC) and distearoly PC (DSPC) are the PC lipids used in the present study. Lastly, a sonication process to produce unilamellar vesicles was partially optimized based on the particle distribution and the number of vesicles formed with sonication time. Results: As a result of this study, unilamellar and multilamellar vesicles were formed, The vesicles were examined using DLS (Dynamic Light Scattering) and SEM (Scanning Electron Microscope). Liposomes were made with mean particle size of 7.002-3.671 nm. Typical encapsulation efficiencies were in the range of 5.29%-15.39% for these liposomes. Conclusion: Liposomes are one of the unique drug delivery system, which can be of potential use in controlling and targeting drug delivery. liposome vesicle has drawn attention of researchers as potential carriers of various bioactive molecules that could be used for therapeutic applications in human and animals. Many factors contribute to their success as drug delivery vehicles. Liposomes solubiliselipophilic drug candidates that would be otherwise difficult to administer intravenously. As well as the encapsulated drug is inaccessible to metabolizing enzyme

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