

Preparation and Characterization of Polymer Based Microemulsion System

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Abstract — The present investigation deals with pharmaceutically acceptable and stable water continuous microemulsion systems with and without incorporation of chitosan, a biodegradable polymer. Pseudoternary phase diagrams were constructed using Capmul-MCM (oil phase), Tween 20 (surfactant) and distilled water alone or 1% chitosan aqueous solution. The model microemulsions were characterized with regard to its eosin absorption, electrical conductivity behavior, interfacial tension and particle size measurement after dilution with water. The area of microemulsion zone was found to be greater for polymer incorporated microemulsion system as compared to that of an aqueous system. The results obtained from eosin absorption and electroconductivity studies were useful for prediction of structural changes of microemulsions as a function of water content. The interfacial tension changes associated with polymer based microemulsion revealed ultralow values. Moreover the investigated particle size and polydispersity index after dilution with an excess of continuous phase proved homogeneous and thermodynamically stable nature of the system and ensured efficiency of microemulsion systems as a drug carrier.
