

Abstract

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This paper deals with characterization of liposomal formulations with encapsulated triethylenetetramine (TETA), which is selective Cu^{II} -chelator used in the treatment of Wilson's disease for decades. Liposomal formulations were prepared by a film hydration method with subsequent dual asymmetric centrifugation with the addition of 2.5 mol/l TETA solution dissolved at pH3 or/and pH7, respectively. Size exclusion chromatography (SEC) was performed to separate free-TETA from the encapsulated-one at day 1, 2, 3, 4, 5 and 8. Two methods of liposome purification, the one column method and the two columns method, were used. The size and the size distribution of prepared liposomes were measured by photon correlation spectroscopy (PCS) at each day of storage. The concentration of encapsulated TETA, as well as the concentrations of cholesterol before the SEC and after the SEC were determined by HPLC in order to express the encapsulation efficiency. No influence of pH or the method of purification on the liposome stability (the average size) were found. However, the higher polydispersity was observed for TETA-liposomes with pH7 purified by the two columns method. The pH value and/or the method of purification significantly influenced the variability of the obtained data or/and the encapsulation efficiency (EE), respectively. The more consistent results of EE during the days of storage were observed with the dissolution of TETA at pH3 value; the higher EE was obtained for the two columns method of purification.