

Microfluidic method for preparation of liposomes loaded with indomethacin

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Summary: *The objective of this study was to investigate the effect of some process and formulation variables on particle size, size distribution (PDI) and encapsulation efficiency (EE) of indomethacin liposome prepared by using microfluidic method. The flow rate ratio (FRR) of water phase to lipid phase and total flow rate (TFR) had a significant impact to liposome particle size and PDI but insignificant impact to encapsulation efficiency. The optimal FRR and TFR were 6.82 and 187.7 ml/min, respectively. Besides, there was a proportional relationship between the diameter of the inside of a microfluidic tube and liposome particle size. The effect of temperature in evaporation process, phospholipid concentration and drug concentration on these output variables were also evaluated and optimized at 60°C, 10 mg/ml and 7 mol%, respectively. The obtained liposomes prepared by microfluidic method possessed several advantages including small particle size (149 nm), narrow size distribution (0.164), easy preparation and scaling up.*