**ABSTRACT**

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Title of Diploma thesis: Up-scaling and further development of matrix liposomes

The thesis evaluates novel matrix liposomes formed by dual asymmetric centrifugation technology. Particles' parameters (size, size distribution and ζ-potential) were analyzed by dynamic light scattering method using ZetaSizer device. Encapsulation efficacy was determined by size exclusion chromatography using carboxyfluorescein as fluorescent encapsulation marker. The overall results support that the most beneficial formulation parameters are 15 min of speed mixing process with ceramic beads of diameter 1,0-1,2 mm. Up-scaling of the procedure didn´t drastically affect liposomal parameters up to a lipid batch load of 700 mg. Furthermore, the usage of different types of gelatin or glycerinated gelatin didn´t significantly influenced particles' characteristics. It is noteworthy that the matrix composed of 50% glycerinated gel sustained the ability to form liposomes by dispersion of vesicular phospholipid gels in phosphate buffer saline even after 31 days. Other matrices showed a damage of liposomes as confirmed by size and size distribution. In conclusion, the obtained data could contribute to the transition from lab scale to industrial scale of the manufacturing procedure. Furthermore, matrix formed from 50 % glycerinated gelatin showed advanced parameters after prolonged storage (31 days) and thus offers a possibility in order to extend the shelf life of obtained liposomes.