SUMMARY

The most comfortable drug administration is the oral one. Unfortunately the protein or peptide substances are not stable in conditions present in the digestive system. Also, thanks to their size and polaritz they are very badly absorbed through the wall of the intestine so it is necessary to modify and specially protect them. Liposomes appear to be suitable candidates – particles with phospholipid membrane not only can protect peptides and proteins against the aggressive environment in the gastrointestinal system they also improve their absorption. Liposomes could be prepared of the wide scale of different phospholipids, surface active substances or bile acid salts.

The aim of this research is to prepare liposomes with addition of rarely used substances in practice and substances (particularly cholylsarcosine, stearylamine and d-α-tocopherol polyethylene glycol succinate) and find out some of their surface properties crucial for the further use in liposomes. Liposomes were prepared by film method followed by hydration and manual extrusion through a membrane with defined pore size of 200nm. The average vesicle size was defined by the method of photon - correlation spectroscopy (PCS). We succeeded in confirmation that the liposome particle size is also dependent on the constitution of the lipid membrane, added substances lead to decrease of the size of liposomes due to their charge or the structure of the molecule.

The next surface property examined was the zeta-potential of liposomes. We succeeded in confirmation that there is a close connection of zeta-potential with the charge of used substances. It was measured that in the liposomes with positively charged stearylamine the zeta-potential was positive and in the liposomes with negatively charged cholylsarcosine the zeta-potential was negative. The presumption of influence of the pH was also confirmed. Acid pH moves the zeta-potential values to positive and basic pH moves the values to the negative scale. The examined substances give the liposomes similar surface properties as usually used substances but before using them commonly further studies, not only of their properties, are needed.