Summary

Ten commercial packages of oral drops with seven different dropper tips have been tested in this thesis. The mass of a drop has been investigated in the dependence on density, surface tension, dynamic viscosity and dispensing angle. Physical and chemical properties of oral formulations influence significantly the dropping ability of dispensing systems as well as the mass of a drop. An explicit dropping condition has been deduced. It formulates relations among characteristic dimensions of the dispensing system, surface tension and density of the liquid. The validity of the dropping condition has been verified for all original commercial packages. A linear relationship between drop mass and viscosity has been determined experimentally; a weak decreasing dependence between necking diameter and viscosity has been found. A combined influence of density and surface tension on diameter of a drop has been explained. The mass of drop decreases significantly when the dispensing angle decreases from 90° to 70°. However, the variability of dose increases simultaneously due to wetting of dropper tip and possible formation of bigger drops. A patient should be informed about the necessity to drop the oral formulation upon strictly vertical position. This information has been missing at seven from ten original packages of oral drops under study.