

The method of drop coating deposition in Raman spectroscopy is based on the measurement of Raman spectra from a dried deposit of the studied sample, which is formed by drying a drop of a solution or suspension deposited on a solid hydrophobic surface. By drying the drop, the substance is pre-concentrated which achieves a higher detection sensitivity compared to the measurement of Raman spectra from a solution. In this work, we studied homogeneous and non-homogeneous suspensions of liposomes in different concentrations from five types of single-component lipids and two natural lipid extracts. We deposited a drop of the suspension onto a commercially available hydrophobic substrate  $\mu$ -RIM<sup>TM</sup>, measured the droplet static contact angle and characterized the formed deposits by their area and the width of their edge rings. We measured the Raman spectra from the ring and determined the ratio of the intensities of the selected spectral bands corresponding to the stretching vibrations of the group -CH<sub>2</sub>- ( $I_{2880}/I_{2850}$ ), which characterize the order and phase of the lipid. The obtained results show that deposits from homogeneous suspensions differ from inhomogeneous suspensions by the presence of clearly defined edge rings, a smaller area of the deposit and by a higher intensity of spectral bands in the Raman spectra. The values of static contact angles indicate, except for the DOPE lipid, similar wettability of water and liposome suspensions in the range of low concentrations studied here. The maps created from the ratios of the intensities of the spectral bands  $\nu_s(\text{CH}_2)$  ( $\sim 2850 \text{ cm}^{-1}$ ) and  $\nu_a(\text{CH}_2)$  ( $\sim 2880 \text{ cm}^{-1}$ ) indicate possible changes in the arrangement of lipids and the phase in the dried edge rings. Larger ranges of values of the  $I_{2880}/I_{2850}$  ratio and the  $S_L$  parameter prove that the edge rings are not uniform.