

# Abstract

The theoretical part brings a brief overview of selected relevant papers dealing with measurements of advancing and receding contact angles. These studies deal with the methods of determination of free surface energy, determination of contact angles, estimation of free equilibrium surface energy components, changes in the level of components of free surface skin energy following washing, Marangoni effect in water, advancing, receding and equilibrium contact angles, measurement of dynamic adhesive tension and dynamic contact angles.

In the experimental part, the Krüss K100 tensiometer equipped with the plate method was used to measure the surface tension and contact angles of distilled water at 37°C on the surfaces impregnated with examined substances in selected proportions and dissolved in volatile solvent. The measuring plate surface was impregnated with prepared samples in advance; the first samples: palmitic acid and oleic acid with cholesterol; the second samples: cholesterol sodium sulphate in mixtures with cholesterol and selected fatty acid, as well as in combination with cholesterol, 14S24 and oleic acid; the third samples: N-acetyl-D-sphingosin, N-hexanoyl-D-sphingosin, 12SG12, 12GV12 in the solution alone, as well as in combinations with cholesterol and in combination with cholesterol and palmitic acid.

It was found out that palmitic acid in samples with cholesterol applied on a measuring plate determines lower surface tension and greater contact angles values of distilled water as the measuring liquid compared with palmitic acid. With the cholesterol at proportion of rising fatty acid contents again applied on a measuring plate, the measuring liquid surface tension decreases, whilst the values of the measuring liquid contact angles do not change much.

It was further established that samples of ceramides with cholesterol, and samples of ceramides with cholesterol and fatty acid applied on the measuring plate show greater values of measuring liquid contact angles compared with the ceramide alone.

Samples with cholesterol sodium sulphate and other examined substances were measured for liquid surface tension using a plate impregnated from two parts of prepared samples, i.e. from the part above sediment and the part after complete sample 81 dissolution at 80°C. It was found out that measured values of surface tension using the plate applied by a layer of samples with cholesterol sodium sulphate do not correspond to the envisaged relationship.