

Surface energy determination of solid materials by contact angle measurement

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The method of contact angle (CA; deg) is usually employed for the determination of surface free energy (SFE; mJ/m²) of solids and liquids (ST; mN/m). The CA method is one of the methods used in tensiometry, a non-invasive and rapid analytical approach capable of determining the surface energy properties of natural and artificial systems. The main aim of our work is the evaluation of the tensiometric variations of a raw extract of *Juniperus Communis* (REJ), extracted using liquid near-critical CO₂ as solvent in Soxhlet mode, and this extract after the demoterpenization process (DMT) performed by freezing out its monoterpane's fraction. The changes in surface properties of DMT were correlated to the modification of its chemical composition analysed by gaschromatography. In order to reach our objective, six solids test (st) having different tensiometric properties were used and in each case the CA variation with the time at st/DMT and st/REJ interfaces were measured.

Out of the six st lanolin alcohol can be considered as the reference solid test for the tensiometric evaluation of the process of demoterpenization of the extract of *Juniperus Communis*. The increase of the concentration of β -Cariophyllene and Cadinene causes the increase of CAs measured at the interface between lanolin alcohol and the extract of *Juniperus Communis* after the process of demoterpenization. The increase of Beta-Kariofilen and Kadinene concentration appear to be the main cause of the increase of polarity of the extract. This demonstrates that GC data and CA are linked to each other for that compounds that are more representative in the extract of *Juniperus Communis* (>20%). The GC data are in accord with CAs for compounds having highest concentration in DMT and REJ.

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