UHPLC-MS

DIONEX ULTIMATE 3000, THERMO SCIENTIFIC INT. LCQ FLEET ION MASS TRAP

Ultra high performance liquid chromatography (UHPLC) is a method for separation of compounds from mixtures based on differently strong interaction of the separated compounds dissolved in a mobile phase with a stationary phase in the chromatographic column. Use of high pressure allows better separation of the compounds in the column resulting in higher performance of the measurement. Furthermore, UV-visible detection is accompanied by mass spectra measurement (MS) providing mass/charge (m/z) values for each separated compound, which allows identifying its molecular composition. This technique is widely used for quantitative as well as qualitative analyses, characterization of purity of usually organic compounds and identification of potential impurities.

ACQUIRED INFORMATION

- Qualitative and quantitative analysis of mixture of substances
- Determination of molecular weight (qualitative analysis)
- Determination of the primary structure of the analysed substance

Dionex Ultimate 3000 UHPLC system together with LCQ Fleet mass spectrometer

SAMPLE TYPES

- Solid or liquid samples soluble in common solvents (MeOH, MeCN)
- Small amount of sample required (usually less than 1 mg)

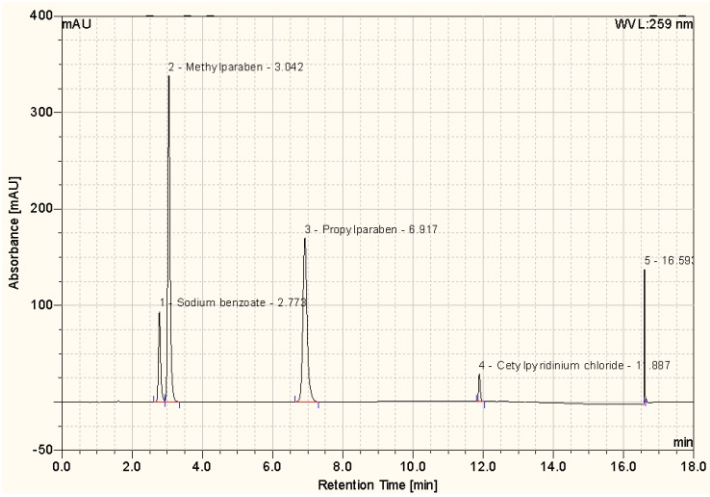
MODES, CONDITIONS AND PRECISION

UHPLC:

- Pump max. pressure – 620 bar, column thermostat 5-80 °C, UV detector DAD-3000
- Columns with different stationary phase based on C18

MS:

- Ionization techniques ESI or APCI
- Positive/negative mode (quick change during scanning)
- Available range m/z = 50–4000
- Optional direct injection method (without HPLC) – analysis of chromatographically indivisible substances
- Liquid sample concentration limit = 10^{-9} M
- Analysis of fragments up to MS/MS^n



Example of measured chromatogram for determination of conservants in mounth wash

DETAILED INFORMATION ON REQUEST

REGIONAL CENTRE
OF ADVANCED TECHNOLOGIES
AND MATERIALS

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