

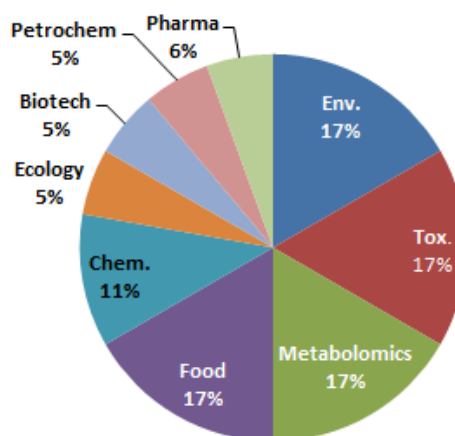


Přehled aplikací GC-MS

Typ MS	Časové období	Celkem	Aplikace	Publikace	Ostatní
Celkem		671	118	513	40
QTOF	2011-2013	33	5	13	15
TQ	2008-2013	172	37	128	7
MSD	Aplikace: 2005-14 Publikace: 2013/14	466	76	372	18

* Zdroj: Google Scholar, e-Library

GC-QTOF 7200 Typy aplikací



Environmentální aplikace - GC-QTOF 7200

- **Tolerance and sequestration of macroalgal chemical defenses by an Antarctic amphipod: a 'cheater' among mutualists**

Authors: Amsler M.O., Amsler C.D., von Salm J.L., Aumack C.F., McClintock J.B., Young R.M., Baker B.J.

Abstract: Shallow-water communities along the western Antarctic Peninsula support forests of large, mostly chemically defended macroalgae and dense assemblages of macroalgal-associated amphipods, which are thought to exist together in a community-wide mutualism. The amphipods benefit the chemically defended macrophytes by consuming epiphytic algae and in turn benefit from an associational refuge from fish predation. In the present study, we document an exception to this pattern. The amphipod *Paradexamine fissicauda* is able to consume *Plocamium*

cartilagineum and *Picconiella plumosa*, 2 species of sympatric, chemically defended red macroalgae. In previous studies, *Plocamium cartilagineum* was one of the most strongly deterrent algae in the community to multiple consumers, and was found here to be unpalatable to 5 other amphipod species which utilize it as a host in nature. *Paradexamine fissicauda* maintained on a diet of *Plocamium cartilagineum* for 2 mo were much less likely to be eaten by fish than *Paradexamine fissicauda* maintained on a red alga which does not elaborate chemical defenses, or than a different but morphologically similar sympatric amphipod species. Halogenated secondary metabolites produced by *Plocamium cartilagineum* were identified from tissues of the *Paradexamine fissicauda* that had eaten it but not those which had eaten the undefended red alga. This indicates that *P. fissicauda* is sequestering the potent chemical defenses of *Plocamium cartilagineum* for its own use.

- **Use of Q-TOF GC/MS to quantify SPMD extracts from river water and marine sediment**

Authors: Aronova S., Gravell A.

Abstract: Surface water quality is vitally important to our everyday life. Protecting such a valuable resource requires chemical testing typically involving mass spectrometric analysis. However, extracts from river water, waste water and marine sediments using GC/MS generates a large number of unknown compounds that need to be identified and subsequently quantified. In principle, MS can be used to elucidate the de novo structure of unknown compounds beginning with the determination of molecular formula of the molecular ion, using accurate mass measurements that have errors less than a few parts per million (ppm). Mass measurements obtained with errors below 2 ppm combined with the isotopic distribution of the mono-isotopic peak can be used to eliminate many of the possible molecular formulae.

- **Gas chromatography quadrupole time-of-flight mass spectrometry determination of benzotriazole ultraviolet stabilizers in sludge samples**

Authors: Casado J., Rodríguez I., Carpinteiro I., Ramil M., Cela R.

Abstract: In this research, a simplified procedure for the selective determination of nine benzotriazole UV stabilizers (BUVSs) in sludge from urban sewage treatment plants is presented. Analytes were extracted from the sample using the matrix solid-phase dispersion (MSPD) technique and further determined by gas chromatography (GC) with quadrupole time-of-flight mass spectrometry (QTOF-MS). Highly selective chromatographic records were attained considering a mass window of 0.005 Da, centred in the quantification product ion corresponding to each compound. Moreover, the availability of accurate ion product scan MS/MS spectra permitted to confirm the identities of peaks observed in extracted ion MS/MS chromatograms. As a result, a straightforward sample preparation procedure combining extraction and clean-up in the same step, and consuming just 10 mL of ethyl acetate, sufficed to deal with complex sludge samples. The developed method attained limits of quantification (LOQs) between 2 ng g⁻¹ and 10 ng g⁻¹, referred to freeze-dried sludge, and recoveries from 70% to 111%, with standard deviations from 2% to 13%. Analysis of sludge samples and certified reference materials confirmed the existence of residues of eight out of nine BUVSs. UV-326, UV-328 and UV-234 displayed the highest occurrence frequencies and individual concentrations above 100 ng g⁻¹ in several samples.

- **Profiling of soil fatty acids using comprehensive two-dimensional gas chromatography with mass spectrometry detection**

Authors: Zeng A.X., Chin S., Patti A., Marriotta P.J.

Highlights: Soil bacterial fatty acids esters were studied by using GC × GC methods. A series of different column sets showed a non-polar × polar set to be most suitable. Forest soil comprised saturated, unsaturated, branched, hydroxyl and oxygenated FAME. Accurate mass QTOFMS analysis with GC × GC permitted interpretation of all FAME.

- **Analysis of Trace-Level Volatile Compounds in Fresh Turf Crop (*Lolium perenne* L.) by Gas Chromatography Quadrupole Time-of-Flight Mass Spect**

Authors: Hong S., Kang W., Su Y., Guo Y.

Abstract: In the traditional research of volatile compounds, some trace-level compounds could not be identified by gas chromatography-mass spectrometry. Target and post-targeted methods were applied in the investigation of trace-level volatile compounds in fresh turf crop (*Lolium perenne* L.) based on gas chromatography in combination with hybrid quadrupole time-of-flight mass spectrometry. According to literatures published, a target analysis was performed by using retention index, accurate masses of characteristic ions and second-stage mass spectra (MS₂ spectra). And a series of experiments showed that low electron impact energy was beneficial to the improvement of the abundances of low abundance molecular ion peak. Enhancing the abundances of low abundance molecular ion peak was beneficial to qualitative analysis. Totally, 60 volatile compounds were identified, the great majority compounds of which were benzeneacetaldehyde (14.8%), 2,5-dimethyl-pyrazine (9.6%), and hexanal (9.3%). Identification was complied by mass spectral search, retention index and accurate masses of characteristic ions.

- **Advanced Techniques in Gas Chromatography-Mass Spectrometry (GC-MS-MS and GC-TOF-MS) for Environmental Chemistry**

Authors: Ferrer I., Thurman E.

Abstract: GC/MS in environmental chemistry.