Applied Organometallic Chemistry

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CONTENTS

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Section: Speciation Analysis and Environment

The leaves of four angiosperm species, the mangrove *Avicennia marina*, the samphire *Sarcocornia quinqueflora*, the seablight *Suaeda australis* and the seagrass *Posidonia australis*, were sampled from three locations from the south-east coast of NSW, Australia. Arsenic concentrations were significantly different between species and locations but were consistently low compared with marine species. Uptake of arsenic appears to be dependent on iron uptake but not phosphorus uptake. Marine angiosperms mainly cycle inorganic arsenic with little biomethylation of arsenic occurring.

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Identification statement

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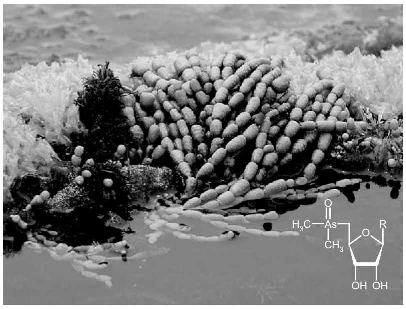
Arsenic cycling was examined in the marine inter-tidal and estuarine algae from the south-east coast, NSW, Australia. Distinct differences between algal classes were found for the proportion of arsenic species present in the lipid and water-soluble fractions, with green algae having a higher proportion of arsenic in lipids (19–44%) than red inter-tidal (5–34%) or estuarine algae (10–24%). The presence of dimethylated arsenoribose-based arsenolipids in marine algae may be precursors for arsenobetaine, via intermediates previously identified in marine organisms.



D. Thomson, W. Maher* and S. Foster 396–411

Arsenic and selected elements in inter-tidal and estuarine marine algae, south-east coast, NSW, Australia

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A GC-MS method for the determination of migration of organotins in aqueous food simulants was developed and validated. Ethylation conditions were optimized. TPrT and DHT were used as internal standards for butyl- and octyltin compounds, respectively. The stability of the organotins during migration tests is reported.

S. D. Papaspyrou, N. S. Thomaidis*, E. N. Lampi and A. Lioupis 412–424

Determination of migration of n-butyltins and n-octyltins to food simulants by gas chromatography–mass spectrometry

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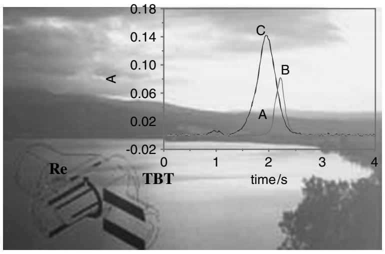
A simple and cost-effective screening method for the determination of the toluene extractable organotin compounds by ETAAS, using Re as chemical modifier, is described.



N. S. Thomaidis*, A. S. Stasinakis and T. D. Lekkas 425–433

A screening method for the determination of toluene extractable organotins in water samples by electrothermal atomic absorption spectrometry and rhenium as chemical modifier

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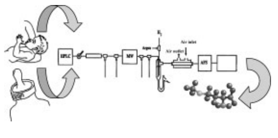
Chiral speciation of selenomethionine is a challenge in food and health fields due to selenium importance during infant nutrition. The use of the coupling HPLC-MAD-HG-AFS, based on atomic fluorescence detector, is suitable for routine selenium chiral especiation of human and formula milk. Sample pretreatment based on ultrafiltration clean-up and solid phase preconcentration is necessary for reliable analysis of these samples.



J. L. Gómez-Ariza*, V. Bernal-Daza and M. J. Villegas-Portero 434–440

First approach of a methodological set-up for selenomethionine chiral speciation in breast and formula milk using high-performance liquid chromatography coupled to atomic fluorescence spectroscopy

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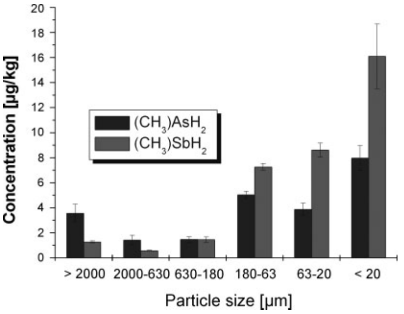
The aim of this study was to determine to what extent particle size determines the occurrence of organometal(loid) compounds of the elements As, Sb, Sn and Te in freshwater sediments. The concentration of monomethylated metal(loid)s was up to 100-fold higher than those of higher methylated species. The highest concentration of organometal(loid) species was always detected in the sediment fractions that contained the highest concentration of humic substances and comprised up to 40% clays and silt particles (<63 µm).



L. Duester*, L. M. Hartmann, L. Luemers and A. V. Hirner 441–446

Particle size distribution of organometal-(loid) compounds in freshwater sediments

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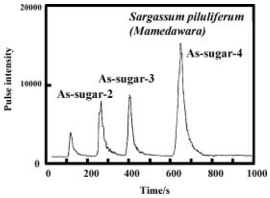
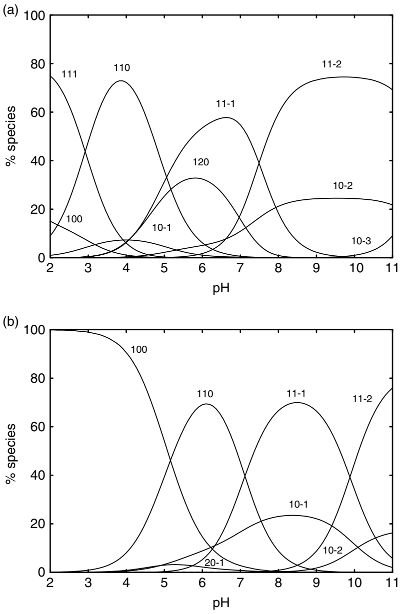
Arsenic speciation analysis in marine samples was performed using high pressure liquid chromatography (HPLC) with ICP-MS detection. The separations of arsenic species and arsenosugars in the extracts from marine samples were achieved on a Shiseido Capcell Pak C18 column and a Hamilton PRP X-100 anion-exchange column using 20 mM ammonium hydrogen carbonate solution (pH 8.4). The concentrations of arsenosugars in algae were in the range 3.6–27.5 µg g^{-1}, which were accounted for 6.0–34.9% of total arsenic.



S. Hirata* and H. Toshimitsu 447–454

Determination of arsenic species and arsenosugars in marine samples by HPLC-ICP-MS

Dimethyltin(IV) and trimethyltin(IV)–phosphomycinate complex formation equilibria were studied in aqueous solution using UV–vis spectroscopy and ISE-H^+ potentiometry, at 25 °C and 0.1 mol l^{-1} ionic strength.



G. Casella, T. Fiore, M. M. A. Mohamed, L. Nagy, C. Pellerito, L. Pellerito*, S. Sammartano and M. Scopelliti 455–461

Equilibria involved in the diorganotin(IV) and triorganotin(IV) phosphomycin interaction in aqueous solution

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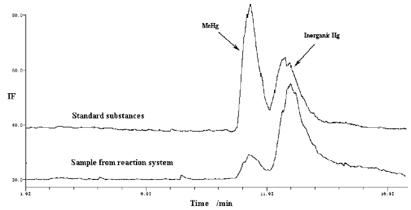
The product of methylation reaction is monomethylmercury. There are different effects of salinity on methylation at two different pH levels. From an electrophile reaction point of view, salinity and pH change electron density of methyl donors and electrophilicity of mercury ions.



The research was concerned with trace elements status in individual parts of the rape plant: roots, shoots and seeds.