Accessory publication

Arsenic compounds in tropical marine ecosystems: similarities between mangrove forest and coral reef

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Fig. A1. A mixture of four standard cationic arsenic species (each at 100 µg As L⁻¹). HPLC condition: Supelcosil LC-SCX cation-exchange column (250 × 4.6 mm internal diameter, 5 µm) at 40°C, mobile phase 20 mM pyridine (pH 2.6) at 1.5 ml min⁻¹. AB, arsenobetaine; TMAO, trimethylarsine oxide; AC, arsеноcholine; Tetra, tetramethylarsonium ion.
Fig. A2. A mixture of eight standard arsenic species (each at 50 µg As L⁻¹). HPLC condition: Hamilton PRP-X100 anion-exchange column (250 × 4.1 mm, 10 µm) at 40°C, mobile phase 20 mM NH₄H₂P0₄ (pH 5.6) at 1.5 ml min⁻¹.
Fig. A3. Extract of leaves of mangrove (*Avicennia officinalis*) from Ao Numbo. HPLC conditions: Agilent anion-exchange column (G3154-6501, 4.6 × 150 mm) at 35°C with mobile phase (1.3 ml min⁻¹) of 10 mM NH₄HCO₃ at pH 10.7. Peaks identified as DMA (3.3 min), As⁰ (4.6 min), MA (6.3 min), and As⁵ (9.1 min) by retention time matching with standards. Samples were run under these conditions mainly to determine As⁰ which cannot be reliably measured by PRP-X100 at pH 5.6 (Fig. A2)
Fig. A4. Cation-exchange chromatogram (HPLC-ICPMS) of extract from the gastropod *Telescopium telescopium* (solid line) and *Telescopium telescopium* extract co-injected with standard arsenosugar E (dotted line). Chromatographic conditions were: Supelcosil LC-SCX cation-exchange column (250 × 4.6 mm internal diameter, 5 µm) at 40°C, mobile phase 20 mM pyridine (pH 5) at 1.5 ml min⁻¹.

Sample + arsenosugar E
Fig. A5. Anion-exchange chromatograms (HPLC/ICPMS) for three standard arsenosugars (top) and the extract from Placuna placenta (bottom) (a). Chromatographic conditions: Hamilton PRP-X100 anion-exchange column (250 × 4.1 mm, 10 μm) at 40°C, mobile phase 20 mM NH₄H₂PO₄ (pH 5.6) at 1.5 ml min⁻¹. Anion-exchange chromatogram (HPLC/electrospray MS) of the extract from the bivalve Placuna placenta (b). Chromatography was performed using a PRP-X100 anion-exchange column (250 × 4.1 mm) equilibrated with 10% methanol in 20 mM NH₄HCO₃, pH 10.3 (flow rate 0.4 ml min⁻¹); and the compound was detected at m/z 393 (MH⁺) with a Hewlett Packard G1946A single quadrupole mass spectrometer using electrospray ionisation in positive ion mode.