

**Determination of Mercury Species in Portuguese Salt Marshes using  
Capillary GC – Atomic Fluorescence Spectrometry**

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Salt marshes located near by industrialised areas can act as natural sinks for trace metals. Anthropogenic metals, associated with suspended particulate matter can be transported by tidal currents and trapped by vegetation with subsequent incorporation into sediments. Plant roots can interact with the surrounding sediment, exuding oxygen and organic compounds that influence the distribution and availability of trace metals; however, the amount of metals taken up by the plants is dependent of the metal availability in the sediment, and this is modified by the root activity. Oxygenation of upper estuarine sediments decreases rapidly with depth due to the consumption of oxygen in the oxidation process of the organic matter; however, salt marsh sediments receive an additional input of oxygen in the sub-surface layers through the well developed aerenchyma of salt marsh plants (halophytes) which transports oxygen from leaves to roots and consequently to the surrounding sediments. This supply of oxygen can alter significantly the redox status of sediments with strong repercussions on the biogeochemistry of nutrients and trace elements, namely mercury. The methylation of mercury in salt marsh sediments is poorly documented, although abundant micro-organisms and strong redox gradients between roots and surrounding sediments may favour that process. Because the sediment environment in salt marshes is exceedingly complicated it is pertinent to investigate the conversion of inorganic mercury into organomercury species. A fully automated GC coupled to atomic fluorescence spectrometer will be described for the determination of methylmercury in sediments and salt marsh plants.