



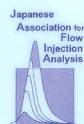
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ANALYSIS

15 - 20 SEPTEMBER 2013

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IODINE SPECIATION IN BATHING WATERS AND SEaweEDS USING A SI FLOW-BATCH STANDARD ADDITION METHOD

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In seawater, iodine is one of the most abundant micronutrients and is mainly present as iodide and iodate with a minor fraction as dissolved organic iodine. As the most stable form, iodate would be expected to be found at higher concentrations in surface seawater. However, due to phytoplankton and bacteria degradation, IO_3^- is converted to I^- . Iodine can also be found in marine algae where it is incorporated mainly as iodide. Capillary electrophoresis and chromatography are the most common methods employed for iodine determination. However, these methods present limitations when complex sample matrices are involved, since a laborious sample pre-treatment is needed. The present work describes the development of a sequential injection (SI) for iodine speciation in bathing waters and seaweeds by performing the spectrophotometric determination of iodate and the potentiometric determination of iodide. Aiming to overcome the matrix interference and cope with low analyte concentration levels, the standard addition method was used. The incorporation of a mixing chamber in a lateral port of the selection valve for a flow-batch approach enhanced the mixture between sample, standards and reagent. The achieved dynamic ranges were 6.7 – 20 μM for iodate and 5 – 500 μM for iodide, with detection limits of 0.1 μM and 0.4 μM , respectively. The results were in agreement with those obtained by ICP-MS, confirming the accuracy of the developed method which was effectively applied to bathing waters (inland and coastal) and algae samples.

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