By now it is a well-known fact that iodine is an essential trace element for the growth and development of the human body. Because of iodine deficiency, some countries have added iodate to salt in order to increase the iodine intake. However, some people prefer iodine from more natural sources like seaweed and fish, which contain elevated levels of iodine (fish typically 1-10 mg/kg and seaweed up to 8000 mg/kg). These marine food items may contain different iodine species, which may have different bioavailability and toxicity, and hence there is an increased interest in developing analytical methods for determining the different iodine species.

For determining the total iodine concentration in marine samples five different extraction methods were compared. The most efficient and precise method was then used for determining the total concentration of iodine in seaweed and fish samples using inductively coupled plasma mass spectrometry (ICPMS).

Furthermore 32 marine samples were analyzed for contents of iodide, iodate, moniodotyrosine (MIT) and diiodotyrosine (DIT). The samples were extracted using the enzyme pancreatin followed by analysis with reversed phase high performance liquid chromatography (HPLC) coupled to ICPMS.

These studies may be a stepping stone for further studies that can clarify the cycle and implications of iodine species in relation to the use of marine food items as iodine sources.

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