

Evaluation of ICP-MS and XRF in Determining Arsenic, Mercury, Cadmium and Lead in Soil

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ICP-MS can quantify multi-element simultaneously only in aqueous media. Therefore, for solid samples, ICP-MS activity is entirely depend on the dissolution method for specific solid samples. Although, ICP-MS offers the high sensitivity analysis with lower detection limits of most elements are in ppt level and isotopic analysis can be achieved. However, it has been difficult to determine the key trace metals (Arsenic, Mercury, Cadmium, Lead etc.) at the same time due to contamination and interference from major constituents. Inductively coupled plasma mass spectrometry (ICPMS) is the most promising technique for multielemental determination of trace metals. Some trace metals have been determined by ICPMS just after microwave dilution of soil. Although this technique is simple, the dissolution of all soil by microwave dilution process is not fully sufficient due to soil structure. It is also difficult to develop the analysis method for the determination of Mercury (Hg) in soil even in water by ICP-MS. Thus, it is awarded the dissimilarities of the result were investigated for the different optical method using XRF and ICP-MS. Therefore, it should be clarify the method for getting the reliable data.

Keywords: ICP-MS, XRF, Mercury

