DETERMINATION OF HEAVY METALS IN CALCIUM AND HERBAL SUPPLEMENTS UTILIZING INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (ICP-MS)

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Recent studies have prompted concerns regarding the composition of mineral and herbal supplements.

These ultimately have resulted in mandated heavy metals testing of calcium carbonate based supplements in the United States.

Proposals for similar actions are now being considered for regulating the contents of herbal supplements.

The analytical techniques most commonly used for metals determination in these types of samples are graphite furnace atomic absorption spectroscopy (GFAAS) and inductively coupled plasma optical emission spectroscopy (ICP-OES).

The requirements for increased detection capability, improved selectivity and enhanced productivity has stimulated interest in the use of ICP-MS as an alternative to these methods of analysis.

ICP-MS is a rapid multi-element technique with superb detection capability that can provide both qualitative and quantitative information for up to 70 elements.

The determination of trace metals in a variety of over-the-counter calcium supplements, calcium based antacids, and herbal supplements by ICP-MS was conducted and analytical figures merit established.