

**METHODOLOGY FOR QUALITY CONTROL
AND QUALITY ASSURANCE FOR ARSENIC
DETERMINATION IN SRI LANKAN SOIL
SAMPLE**

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Abstract

Arsenic became a widespread contaminant in soil. Mainly soil contains both Inorganic and Organic forms of Arsenic in the form of As (III) and As (V). Several studies have focused on Arsenic measurement in Sri Lankan soil, such as conventional 4 M HNO₃ method and etc. But there is no any validated, quality control and quality assurance method has reported to measure the total Arsenic in Sri Lankan soil. The present study is based on the microwave digestion method to digest the soil sample and HG - AAS to analyze the digested soil samples. The NIST analyze method for SRM 2586 was obtained as the reference method and the SRM 2586 sample was used as the Certified Reference Sample. The total soil digestion was carried out using 35% Hydrochloric acid, 69% Nitric acid and 40% Hydrofluoric acid within a microwave digester and digested samples were treated with Boric acid to remove excessive HF and KI, HCl mixture to convert As (V) in to As(III). Microwave digestion method obtained results with an accuracy of 97.47 % compared with the NIST mean value for the SRM sample. The Conventional 4 M HNO₃ method could not get the accurate data comparing with mean value of the SRM sample. The field soil samples from mahailuppallama area contains $0.8 \pm 0.12 \mu\text{g/l}$ of Arsenic level.

Key words : microwave digestion, Conventional 4 M HNO₃ method, Certified Reference Sample, HG - AAS