# SIMULTANEOUS DETERMINATION OF Cu, Mn, Bi AND Sb USING MULTIELEMENT GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROMETER

## SHAREW MEKONNEN[*]

Department of Basic Science, College of Technology and Engineering, M. P. University of Agriculture and Technology, UDAIPUR – 313001 (Raj.) INDIA

A multi-element atomic absorption spectrometer (SIMAA 6000) has been used to improve the determination of the mass of Cu, Mn, Bi, and Sb. First, the optimal test conditions in single-mode mode are determined (this includes: pyrolysis and atomization temperature). Then, the risk factors for each group of up to four objects in multi-element mode are also improved. The setting of the affected conditions in the multi-mode mode has been performed and compared with these for a single feature. The element weight of each element in the determination of multiple objects simultaneously does not change compared to a single mode. To study the effect of the matrix, a standard urine sample (Seronorm-LOT 0511545) was used (urine sample diluted (1: 4)). The accuracy of the methods has been confirmed by the analysis of reference biological material. The values analyzed in the simultaneous determination of most items were in line with the guaranteed values. The multi-element GF-AAS simultaneously provides a faster, simpler and more sophisticated method for standard analysis of tracking material.

Among the tools available to determine the tracking and ultra-trace feature, Graphite Furnace Atomic Absorption Spectrometry (GFAAS) ranks high for its high precision, selectivity and sensitivity, low spectral distortion, easy operation, low volume sample and low cost. . The biggest challenge facing the future of GFAAS stems from an expanded competition from other modern spectroscopic techniques, e.g. ICP-MS. But compared to other strategies, GFAAS offers fewer features, especially conventional analysis. However, GFAAS suffers from the very beginning to be developed as a single factor, i.e. a period of repeated analysis, in which more than one element has to be measured. Among the latest requirements in atomic spectrometry for the simultaneous determination of multiple objects in small-sized samples with various matrices. This ability is particularly important in areas such as clinical and biochemical fields where large sample size is difficult to obtain. Many different tools have been used to decompose multiple simultaneous tracking devices, such as Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES), Inductively Coupled Plasma-Mass Spectrometry (ICP-MS), X-ray.

Fluorescence Spectrometry and Cathodic Stripping Voltammetry (CCV) 1. Among them, ICP-based tools are the most widely available commercially available. The effectiveness of ICP-based tools is somewhat limited due to the difficulty of coping with high salt concentrations and the need for high volume samples. Therefore, separation or pre-concentration of the analyte from the pre-measurement matrix is required. Although ICP-MS has emerged as a potent high-throughput method comparable to that of GFAAS, MS detectors are complex and expensive, limiting the widespread use of ICP-MS in standard diagnostic work in laboratories and hospitals.

Simultaneous multi-element determination can be performed using a Multi-element GFAA Spectrometer (SIMAA 6000) simultaneously under risk. This includes pyrolysis temperature and atomization as well as the use of an appropriate fixer. The sensitivity and accuracy of this process is comparable to that of a single factor determination. Recovery limits were high due to a set of risk factors. The different combination of items can be determined directly by the SIMAA 6000, if the risk factors are carefully selected.

## ACKNOWLEDGEMENTS