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Proceeding

The 2nd International Conference of
the Indonesian Chemical Society 2013

IC  CS 2013

Research in Chemistry for Better Quality of Environmental

Universitas Islam Indonesia, Yogyakarta, Indonesia
October, 22 - 23th 2013

Abdul Kahar Muzakkir, Conference Hall
Universitas Islam Indonesia (UII), Yogyakarta.
Kampus Terpadu, Jl. Kaliurang KM 14,5 Sleman, Yogyakarta.

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Preface

The international conference is an annual conference of the Indonesian Chemical Society (Himpunan Kimia Indonesia, HKI). In the year 2013, the mandate of the organizing committee was given to the HKI Yogyakarta branch and also supported by Department of Chemistry of Universitas Negeri Yogyakarta (UNY), Department of Chemistry of Universitas Gadjah Mada (UGM), Department of Chemistry of Universitas Islam Negeri Sunan Kalijaga (UIN Suka), National Nuclear Energy Agency (BATAN Yogyakarta), and Volcano Investigation and Technological Development Center (BPPTK Yogyakarta). For the year 2013, ICICS 2013 is hosted by Department of Chemistry, Faculty of Mathematics and Natural Sciences, Islamic University of Indonesia, Yogyakarta from October 22 – 23, 2013. This conference was also prepared to celebrate 70th anniversary of Universitas Islam Indonesia.

The Scientific Programme of ICICS2013 comprises the following:

- | | | |
|---|----|--------|
| 1. Invited Speaker | 11 | papers |
| 2. A total 256 paper for parallels sessions | | |
| a. Organic Chemistry | 32 | papers |
| b. Inorganic Chemistry | 43 | papers |
| c. Physical Chemistry | 37 | papers |
| d. Analytical Chemistry | 68 | papers |
| e. Education Chemistry | 23 | papers |
| f. Biochemistry | 43 | papers |

The breakdown of the presentation is as follows:

Session	Oral	Poster	Total
Invited Speaker	11	0	11
Organic Chemistry	25	7	32
Inorganic Chemistry	38	5	43
Physical Chemistry	31	6	37
Analytical Chemistry	61	7	68
Education Chemistry	22	1	23
Biochemistry	34	8	43
Total	222	34	256

Yogyakarta, 25th November 2013

 ICICS 2013

Editors

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4. Rector of Gadjah Mada University
5. Rector of Yogyakarta State University
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Matrix Interferences Study in Solution Containing Arsenic, Cadmium and Lead by ICP-AES

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Abstract

The objective of the present study was studied the matrix interferences of sodium (Na), calcium (Ca), magnesium (Mg) and chromium (Cr) in solution containing of arsenic (As), cadmium (Cd) and lead (Pb) by Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES) method. The deviation of 99.14% (As), 19.67% (Cd) and 94.62% were caused by 5.0 ppm of Na interference. The deviation of 99.19% (As), 16.58% (Cd) and 99.17% (Pb) were caused by 5.0 ppm of Ca interference. The deviation of 99.25% (As), 17.75% (Cd) and 91.58% (Pb) were caused by 5.0 ppm of Mg interference. The deviation of 99.36% (As), 19.24% (Cd) and 79.44% (Pb) were caused by 5.0 ppm Cr interference. That is mean 5.0 ppm of Na, Ca, Mg and Cr as the major elements potentially gives interferences to As, Cd, Pb determination by ICP-AES method.

Keywords: interference, inductively coupled plasma

Introduction

The matrix effect and their effect become the main issues in heavy metals analysis. One of the quests of modern analytical chemistry is for techniques that are capable of multi-elemental analysis at the ultra-trace level (Agetemor and Beauchemin, 2011). The multi-elemental determination of various elements at very low concentration still poses a challenge in terms of accuracy and precision for most analytical techniques (D'Illoet *al.*, 2008).

Modern environmental science maintains a great interest in techniques for the multi-element analysis of different materials: nature and waste waters, soil, sediments and air particulates. The trace elements interact and collectively influence biological activities and knowledge about the concentrations of as many elements as possible which is very desirable (Daskalova and Boevski, 1999).

Sodium, calcium, magnesium and chromium are the major element in the common matrix such as herbal, food and water (Masson, 1999). The determination of heavy metals, especially some toxic metals which play important role in biological metabolism has received particular attention (Ferreira *et al.*, 2004). Arsenic, cadmium and lead are the toxic metals and its concentration at the trace level (Anthemidis *et al.*, 2002; Qing-hua *et al.*, 2011). D'Illoet *al.*, 2008 studied the