

# 6<sup>th</sup> International Conference and Exhibition on **Analytical & Bioanalytical Techniques**

September 01-03, 2015 Valencia, Spain

## Determination of arsenic by atomic spectroscopy by its volatile hydride generated electrochemically

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Electrochemical Hydride (ECHG) generation has been proposed as an alternative to chemical processes. The reduction is ECHG element in the cathode surface in an electrolytic cell followed by reaction with hydrogen of the metal element generated in the cell or present in the reaction medium. The ECHG, unlike Chemical Hydrides Generation (CHG) are not used as reducing species expensive, perishable and chemical reagents. Additionally, they do not have the pollution problems and high costs. The ECHG produces metal hydrides as efficiently and reproducibly as CHG but in a cleaner and better controlled. In the present study, the electrochemical generation of volatile species of arsenic hydride (arsine) using as cathode an Au/Hg (gold/mercury) amalgam in a 0.5 M H<sub>2</sub>SO<sub>4</sub> solution is described. The results were compared with those obtained with other commonly used cathodes for the generation of arsine. The effects of electrolysis conditions and interfering ions were also studied. The results showed that the cathode Au/Hg has better interference tolerance and repeatability of the cathodes of Au, Pt, Pb or Reticulated Vitreous Carbon (RGC). Under optimal conditions, a detection limit of 0.027 g/L As (III) in aqueous solutions and a relative standard deviation of 2.4% at a concentration of 0.1 mg/L As (III) was obtained. The accuracy of the method was verified by determining as a certified reference material.

### Biography

Hugo Romero has completed the Master's program in Chemistry from Catholic University of Valparaiso, Chile. He works as a Researcher and Professor at the Faculty of Chemistry at the Technical University of Machala, Ecuador, where he has also served as Director of Chemical Research Center and Director of the Center for Technology Development. His research line is the applied electrochemistry. He has published 10 papers in reputed journals which includes, progress in organic coatings, talanta, advances in chemistry and analytical chemistry research.

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