

Abstract

The aim of this bachelor thesis was to determine the toxicologically important arsenic species in beverages (beer, wine and apple juice) with minimal sample preparation.

Determination of arsenic species was performed by selective hydride generation of arsenic hydrides with cryogenic collection under liquid nitrogen and detection by atomic absorption spectrometry.

In all the samples only inorganic arsenic was found, methyl substituted species were below the limit of detection. The method is suitable for speciation analysis of arsenic in beverages. Detection limits are low enough, the determination is not influenced by the sample matrix. The results were also in good agreement with the determination of total arsenic after mineralization by ICP-MS.

Since there is no specified maximum arsenic content in beverages, measured concentrations were compared with the limit for drinking water ($10 \mu\text{g l}^{-1}$). All samples were under this limit, except for one sample of apple juice, which arsenic content was about twice higher.

Key words

speciation analysis, atomic absorption spectrometry, hydride generation, arsenic, beverages