

24th Global Organic & Inorganic Chemistry Conference

July 18-19, 2018 | Atlanta, USA

Atomic absorption spectrometric determination of the concentration of Fe, Mn, Pb and Cd in fruits of mango, avocado and papaya from Gondar “Arada” Market Gondar, Ethiopia

Senait Aklog

Bahir Dar Institute of Technology, Ethiopia

Statement of the Problem: Contaminations of the environment by heavy metals with their potential effect on health, agriculture and natural ecosystem have a subject of worldwide concern. In Ethiopia, especially in the place where some fruits are found such as Gondar and Bahir Dar, fruits have been used for human consumption without having knowledge of the content of essential and non-essential elements in some selected fruits.

Purpose of This Study: It is to aware the society to be careful when they are eating not to take the fruit above and below their threshold limit or daily allowance limit because the fruits contain some heavy and toxic metals which have a great role in affecting human health.

Methods: An atomic absorption spectrometer has been used for the study. Additionally, different wet-digestion methods were tested to select optimum procedure. The validity of the optimized digestion procedure for fruits was checked by carrying out spiking test and analyzing percent recovery. The study was analyzed using Origin 8 and SPSS (version 20) software.

Results: The mean concentrations of Fe, Pb, and Mn, in fruit were comparable with WHO recommended values but the concentration of Cd showed greater than the threshold value.

Conclusion: The results of sample analysis and their comparison with standard values showed that the average concentration of all heavy metals in the studied fruits was comparable with the standard levels of the WHO they had acceptable conditions for human consumption except the level of Cd.

Recommendations: It would be worthwhile doing a comprehensive analysis not only fruits but also vegetable, soil, and water at different farm places.

Biography

Senait Aklog, has full chemistry back ground in both BSc. and MSc. Currently, she is a lecturer in analytical chemistry and working at Bahir Dar University Institute of technology Ethiopia, based on her academic and work profession. Her main responsibilities are teaching, conducting research, giving community service, organizing laboratories, assisting project works on chemical engineering students, preparing modules and participating in different affairs of our institution. Recently she has one published paper and two research works which have been completed and is trying to publish those research works.

senaitaklog16@gmail.com

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