

Assessment Residues of Some Toxic Heavy Metals in Milk Marketed in Basrah Province/Iraq Using Atomic Absorption Spectrometry

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Abstract

Milk Contamination with metallic pollutants is one of the major problems in public health. Investigation of the toxic heavy metals and determining their concentrations in milk samples is important. So, this study aimed to use atomic absorption spectrometry to determine the presence of hazardous heavy metals and related human health concerns in milk sold in Basrah province. In the present study, 30 samples of liquid milk were collected from the local markets in Basrah province. Levels of heavy metals (cadmium and lead) were detected using atomic absorption spectrophotometer. The current study revealed that the mean values of cadmium and lead in the examined liquid milk were 0.054 and 0.21, respectively. The mean value of cadmium and lead metal was above the maximum limit permitted by World Health Organization /Food and Agriculture Organization (WHO/FAO) in nine and two trademarks of milk, respectively. Lead and cadmium levels were found to be above the safe limits as recommended by the WHO/FAO. In conclusion, the results suggested that cadmium and lead in milk in the investigated areas may cause disturbances and pathological conditions on several organs in the body.

Keywords: Toxic heavy metal, Liquid milk packet, Atomic absorption spectrometry

Introduction

Milk is a liquid nutrition for young mammals before they are able to digest solid food and for adults. It is rich in macro-nutrients (protein, carbohydrate, and fats) and micro-nutrient(vitamins and minerals. However, milk may contain materials with high dense, high atomic numbers and atomic weights (heavy metals) at levels harmful to public health. The most dangerous heavy metals in milk from the viewpoint of health are cadmium, lead, arsenic and mercury (1).

Heavy metals in milk come from milk containers, during milk processing, through water contamination used for agriculture, livestock feed and the environment surrounding milk-producing animals (2).