

CANNING FOOD PROCESSES MAY BE A SOURCE OF THREAT TO THE CONSUMERS

Kithure J.G.N.; Kweyu M. W.

***Department of Chemistry, University of Nairobi
P.O. BOX 30197, 00100, Nairobi, Kenya***

ABSTRACT

Many chemical elements that are present in the human diet are essential for human life at low concentrations but can be toxic at high concentrations and at chronic exposure. The aim of this study was to determine the levels of selected heavy metals viz, cadmium, lead, zinc, chromium and manganese in some canned food: Tuna chunks, Beans, Tomatoes and Mushroom that are sold in the supermarkets in Kakamega Town, in Kenya and compare them with the recommended international levels such as World Health Organization (WHO) and Kenya Bureau of Standards (KEBS). The levels of the analyzed heavy metal ions were done using atomic absorption spectrometer (AAS) in canned food products. The metal concentrations were found to be in the range of (0-0.007 $\mu\text{g}/\text{kg}$) for Pb, (0.0017-0.0054 $\mu\text{g}/\text{kg}$) for Cr, (0.0032-0.0042 $\mu\text{g}/\text{kg}$) for Zn, (0-0.0062 $\mu\text{g}/\text{kg}$) for Mn and (0-0.0035 $\mu\text{g}/\text{kg}$) for Cd. Zinc results were higher than the WHO and KEBS permissible levels in food products. Although most samples had Lead metal concentration within permissible levels, mushroom which had the highest concentration of (0.0071 $\mu\text{g}/\text{kg}$) was higher than this. Chromium had its concentrations below and within the permissible levels except in tomato paste that had the highest concentration of (0.0041 $\mu\text{g}/\text{kg}$) above the permissible levels in all samples. Cadmium and Manganese levels were within the permissible levels in both samples. The results necessitate continuous monitoring of Zn and Pb levels and controlling of the canning process in canned food to obtain food safety. The study shows that Zn, Pb and Cr levels were higher than permissible levels and this is an important alarm in public health. From the results there is requirement for the continuous monitoring of Zn, Pb and Cr concentration for the control of the canning process in canned food for safety. We therefore, recommend further future studies in assessing the levels of these studied elements in human body and also selecting samples from a wide variety of the canned food. Comparison between fresh and frozen foods should be done to determine the exact concentration of metal elements in these food types.

Keywords: Canned food, threat, metals, permissible levels and samples.