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Evaluation of the concentration of some toxic metals in dietary red palm oil

Oguntibeju OO
Cape Peninsula University of Technology, South Africa

Palm oil has been part of human diet for more than 5000 years. For generations, it has been revered as both a nutritious food and a valuable medicine. However, care should be taken to evaluate the purity and safety of this nutritional and medicinal agent to the human system. This study investigated the concentration of cadmium, chromium, mercury, lead, arsenic and nickel in twenty-five samples of ready-to consume palm oil that were bought randomly from different markets in Lagos, Nigeria. The samples were digested with aqua-regia (2:1:2 HNO3:HClO4:H2SO4 respectively) and the digested samples were analyzed using Atomic Absorption Spectroscopy. There was no detectable mercury in one of the twenty-five samples analysed. However, all the samples contained a detectable amount of each of the other five metals analysed. The Oral Component Limit (OCL) for cadmium, chromium, mercury, lead, arsenic and nickel as stated by USP are 0.5µg/g, 25 µg/g, 1.5 µg/g, 1 µg/g, 1.5 µg/g and 25 µg/g respectively. The samples contained detectable amounts of the metals although with values below the USP standard OCL. The results obtained from this study suggest that the palm oil samples analysed are save for consumption in terms of the metals of interest analysed.

oguntibejuo@cput.ac.za