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Human exposure to mercury, lead and cadmium through consumption of canned mackerel, tuna, pilchard and sardine

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ABSTRACT

Total mercury (Hg), cadmium (Cd) and lead (Pb) concentrations were determined in canned fish on the Ghanaian market. Total mercury was determined using an automatic mercury analyzer while cadmium and lead levels were determined by flame atomic absorption spectrophotometry. The metal contents in the samples, expressed in $\mu\text{g g}^{-1}$ (wet weight), varied from <0.01 to 0.20 with an average value of 0.03 for mercury, from <0.01 to 0.45 with an average value of 0.34 for cadmium, and from <0.01 to 1.44 with an average value of 0.72 for lead. The results indicate that canned fish from the Ghanaian market have concentrations well below the permissible FAO/WHO for these toxic metals. Thus considering the Provisional Tolerable Weekly Intake (PTWI) of Hg, Pb and Cd the levels obtained in this study are unlikely to constitute a significant exposure to the public through consumption of moderate amounts.

Keywords: mercury, cadmium, lead, mackerel, tuna, pilchard, sardines, Ghana.

INTRODUCTION

Fish is an extremely important component of the human diet in many parts of the world and provide nutrients such as protein, omega-3 (n-3) fatty acids (that reduce cholesterol levels and

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