B212: Determination of Selected Heavy Metals in Two commercial Cigarettes brands and Tobacco Leaves Marketed in Emuhaya District, Western Kenya

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Abstract

Two commonly smoked brands of cigarette and tobacco leaves from Emuhaya District, western Kenya were randomly sampled and analyzed for heavy metals using Atomic Adsorption Spectrometry (AAS). The brands were Sportsman and Embassy. The results of the analysis indicated that the concentration of Zn was found to be in the range of 2.33±0.36 - 2.58±0.47 ppm, Cu had 15.4±0.77-19.4±0.21 ppm and Cd was 0.08±0.02- 0.10±0.03 ppm. Pb was found in the range of 6.76 ±0.62-7.09±0.07 ppm, Mn concentrations were in the range of 67.32±0.50-96.23±.30 ppm and the values for Fe were in the range of 155.40±0.13 - 260.80±0.21 ppm while Cr was in the range of 2.09±1.84 -3.62±1.50 ppm. Iron concentrations were highest in all the cigarret brands and tobacco leaf compared to the other metals. The concentration of cadmium was lowest in all the samples analyzed. ($P < 0.05$). The levels of heavy metals were above the WHO permissible limit in all the brands and tobacco leaf except for Zinc. The results indicate the prevalence of heavy metals toxicity potential of each brand of cigarette and tobacco leaf and emphasizes on the dangers of cigarette smoking. They also provide scientific rationale for exploitation of these brands of cigarettes and tobacco leaf by the local communities and may lay down some groundwork for serious analysis of heavy metals by manufacturing companies. However, smoking is dangerous and caution needs to be taken for their conflicting adverse medical-based and physiological effects.

Keywords: Tobacco, heavy metals, Cigarette, Toxicity