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Determination of Iron, Zinc, Copper, Cadmium and Lead in Different Cigarette Brands in Yemen by Atomic Absorption Spectrometry

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Abstract : The concentration levels of iron (Fe), copper (Cu), zinc (Zn), cadmium (Cd) and lead (Pb) in different cigarette brands commonly produced and sold in Yemen were determined. Convenient sample treatment for cigarette tobacco of freshly opened packs was achieved by a sample preparation method based on dry digestion, and the concentrations of the analysed metals were measured by Flame Atomic Absorption Spectrometry (FAAS). The mean values obtained for Fe, Zn, Cu, Cd, and Pb in different Yemeni cigarette tobacco were 311, 52.2, 10.11, 1.71 and 4.06 µg/g dry weight, respectively. There is no more significant difference among cigarette brands tested. It was found that Fe was at the highest concentration, followed by Zn, Cu, Pb and Cd. The average relative standard deviation (RSD) ranged from 1.77% to 19.34%. The accuracy and precision of the results were checked by blank and recovery tests. The results show that Yemeni cigarettes contain heavy metal concentration levels that are similar to those in foreign cigarette brands reported by other studies in the worldwide.

Keywords : iron, zinc, copper, lead, cadmium, tobacco, Yemeni cigarette brands, atomic absorption spectrometry
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