DETERMINATION OF HEAVY METALS (CADMIUM AND LEAD) IN SPIRULINA BY ATOMIC ABSORPTION SPECTROPHOTOMETER

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ABSTRACT

Heavy metals inevitably accumulate in marine organism such as *Spirulina.* In this study, the concentration of cadmium (Cd) and lead (Pb) in five brands of *Spirulina* products from the Malaysia market were analysed by Atomic Absorption Spectrophotometer (AAS). These products were digested with three digestion methods including method A, method B and method C. Lead was not detected with all the three digestion methods whereas cadmium was detected in all the *Spirulina* with the three digestion methods. For method A, the mean Cd concentrations were as follow: 0.020 mg/ L, 0.018 mg/ L, 0.018 mg/ L, 0.023 mg/ L and 0.022 mg/ L (brand A, B, C, D and E, respectively). For method B, the mean Cd concentrations were as follow: 0.0038 mg/ L, 0.0070 mg/ L, 0.0068 mg/ L, 0.0054 mg/ L and 0.0061 mg/ L (brand A, B, C, D and E, respectively). For method C, the mean Cd concentrations were as follow: 0.0017mg/L, 0.0019mg/L, 0mg/L, 0.0020 mg/ L and 0.0027 mg/ L (brand A, B, C, D and E, respectively). Nitric acid was proposed as the most efficient method of recovering Cd. The results showed that the concentrations of Cd and Pb in all the brands are below the limit proposed by Ministry of Health of Malaysia, UN Protein Advisory Group, France government, USFDA, NNFA and NNQAA and FAO. Since the Cd and Pb concentration in the *Spirulina* products do not exceed the health hazard level for consumers. Therefore, they are considered safe for human consumption.