ANALYSIS OF HEAVY METALS IN FRUITS BY USING INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROSCOPY (ICP-OES)

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ABSTRACT

ANALYSIS OF HEAVY METALS IN FRUITS BY USING INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROSCOPY (ICP-OES)

Fruits are known as common nutritive foods for human diet that are rich with vitamins, minerals and fibers. However, they may be contaminated by heavy metals and can give risk to human health if taken in exceed quantities. In this study, the analysis of heavy metals was carried out in seven fruit samples which are green apple, red apple, fragrant pear, century pear, banana, mango and guavas. The investigated heavy metals are Cadmium (Cd), Copper (Cu), Manganese (Mn), Nickel (Ni) and Lead (Pb). All the samples were analyzed by Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES). The concentration of the selected heavy metals in the fruit samples were ranged from 0.0467 μg/g to 0.216 μg/g for Mn, 0.133 μg/g to 0.1 μg/g for Pb and from 0.0433 μg/g to 0.0733 μg/g for Cu. The highest concentration of Ni in the fruit samples was 0.033 μg/g. Cd contents were below detection limit for all the fruit samples. The concentration of heavy metal elements obtained from all the samples were ranked with decreasing order as follow Mn > Pb > Cu > Ni > Cd. The concentrations of selected heavy metals were compared with standard allowable amount of toxic heavy metals and also with the literature values. The present study shows that all the concentrations of heavy metals were within the allowable limit except for Pb.

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