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Trace heavy metal contents of herbal products available in UAE pharmaceutical markets

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About 80% of world population use herbal products in one time of their lifetime therefore, research become more oriented and focused on the evaluation of safety and quality control of commercially marketed herbal products. In advanced researches it has been documented that plants contain not only beneficial minerals, secondary metabolites but also contain non-essential minerals, toxic elements as they are contaminated with environmental pollutants especially heavy metals. Thirty-one over the counter herbal products that are available within the UAE pharmaceutical markets were investigated for the presence of seven heavy metals, Cd, Pb, Fe, As, Ni, Al and Hg and to determine whether or not they pose a risk of heavy metal toxicity in regard to World Health Organization (WHO) levels. Sample solution was prepared by a dry ashing or wet digestion procedure. All metals were analyzed either by Graphite Furnace or Flame Atomic Absorption Spectrometry. Method validation was performed by evaluating metal recovery studies and within-day precision studies. The studied samples of herbal products exhibited positive response for all heavy metals except Hg. The results were compared with established WHO permissible limits as for provisional tolerable daily intake for Pb is 0.02 to 3 µg/kg BW (body weight), for Fe is 0.8 µg /kg BW and for Ni is 12 µg/kg BW, weekly intake for Hg is 1 µg/kg BW, for Al is 1 mg/kg BW and for As is 15 µg/kg BW and monthly intake for Cd is 25 µg/kg BW respectively. In conclusion, the herbal products available within UAE contained tolerable levels of toxic heavy metals except Al and Fe for some products.

Biography

Fazilatun Nessa is working as an Associate Professor in the Department of Pharmaceutical Chemistry and Natural Products of Dubai Pharmacy College for Girls, Dubai, UAE. She has completed her PhD studies in Pharmaceutical Chemistry from Universiti Sains Malaysia, Penang, Malaysia. She has presented her several researches at international conferences and published a number of research articles in peer reviewed international journals. Her research area comprised of isolation, characterization of bioactive compounds from natural sources, bioactivity evaluation of extracts/isolates, analytical method development/validation and quality-control studies of pharmaceutical/herbal products.

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