

Determination of heavy metals and trace elements (micronutrients) of some medicinal plants

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Abstract

The use of medicinal plants in worldwide for the treatment of several diseases has been documented. World Health Organization estimates that more than 80% of people in developing countries depend on traditional medicine for their primary health needs. Heavy metals are metallic elements with high atomic number and poisonous to living organisms. Plants may absorb heavy metals from soil, water or air. The purpose of present study was to explore the evidence of heavy metals contamination in some medicinal plants. The atomic absorption spectrophotometer was employed for determination of heavy metals (Cd, Cr, Cu, Fe, Pb and Zn) in *Azadirachta indica*, *Phyllanthus niruri* and *Tinospora cordifolia* and their surrounding soils from Mandalay, Pyin Oo Lwin and Shwe Bo. Soil pH meter and Pocket ProTM Tester were used for determination of physicochemical properties (pH, conductivity, TDS and salinity) in its surrounding soil and water. Some of these plants and all soils contained metals, which were within permissible limit. Chromium contents in *Azadirachta indica* and *Phyllanthus niruri* were little more than permissible limit, 2 ppm. All plants contained high amount of Fe than permissible limit (20 ppm), set by WHO (2005). The physicochemical properties of soils and water were within permissible limit. These results obtained from current study are of particular importance by providing scientific data base which will be very helpful for pharmaceutical consumption and local practitioners using these herbs for different types of ailments. In conclusion, monitoring such medicinal plants for heavy metals is very useful for references for protecting the public from adverse and hazardous effects of heavy metals.