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Polyherbal formulations: Assessment of metal toxicity, pesticide and microbial contamination

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Abstract : Medicinal plants are widely explored worldwide for their medicinal benefits. They are intrinsic components of traditional system of medicines and complementary alternative medicine (CAM). However, heavy metals, microbial and pesticide contamination in soils has turn out to be one of the major challenges faced by herbal medicine makers. Disparity in the levels of heavy metal, micro organisms and pesticides add on contamination and adverse effects in herbal preparations. Possibility of contamination and adulterants is more in polyherbal formulations as they are derived from diverse plant herbs. Our study was aimed at determining heavy metal concentration and pesticide residue in the selected traditional herb components that make up'*Laksha Guggulu'* formulation from different places of Maharashtra, India. total of 12 samples from six plants (two samples for each plant) were analyzed for their heavy metals and pesticide contents by plasma emission spectrophotometer and gas chromatography techniques. In these samples, Mercury (Hg), Lead (Pb), Cadmium (Cd), Chromium (Cr) and Nickel (Ni) were present in all samples however, below the permissible limits. In few samples, Pb and Cd contents were beyond the WHO permissible limits. Apart from these, isomers of α-HCH and γ-HCH pesticides residue were present in almost all the samples. Yet, other pesticides such as β-HCH, DDT and DDE were not detected in these samples. δ-HCH was found merely in three samples. Thus, this study would serve as a prototype profiling layout for weighing the safety and contamination of polyherbal formulations prior to their safe use.

Keywords : Polyherbal formulation, Heavy metals, Organochlorine pesticides, Microbial contamination.

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