Concentrations of several heavy metals in some locally produced ayurvedic arishta

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The concentrations of seven heavy metals; Cu, Cd, Cr, Pb, Ni, Zn, and Fe in eleven different, locally manufactured and commercially available ayurvedic arishta were determined using atomic absorption spectrometry. Standard analytical atomic absorption spectrometric conditions recommended by the manufacturer of the instrument for the analysis of these metals yielded optimum results. Arishta samples were directly nebulized into air/acetylene flames of the instrument for determination of Fe, Cd and Zn. As percentage recoveries with external calibration curve were poor, standard addition technique was employed to obtain concentrations of each of these three metals in all ayurvedic preparations. Electrothermal atomic absorption spectrometry had to be used to determine concentrations of the four elements Cu, Cd, Cr and Ni in all eleven arishta. As interferences were severe, all arishta samples were digested and matrix modifiers were added to the digested arishta samples before atomization in the furnace.

Code of the Arishta	Concentration of metals / mg L^{-1}						
	Fe	Zn	Pb	Cu	Cr	Ni	Cd
A	3.58±0.29	1.19±0.10	0.07±0.005	0.113±0.008	0.091±0.007	0.072±0.006	1.50±0.12
B	9.06±0.72	1.13±0.09	0.141±0.011	0.112±0.008	0.092±0.007	0.031±0.002	1.42±0.11
C	11.16±0.89	3.07±0.24	0.192±0.015	0.112±0.008	0.092±0.007	0.041±0.003	0.48±0.04
D	7.78±0.62	1.35±0.11	0.014±0.001	0.111±0.008	0.101±0.008	0.041±0.003	0.92±0.07
E	4.42±0.35	1.65±0.13	0.114±0.008	0.122±0.010	0.091±0.007	0.022±0.002	0.54±0.04
F	11.60±0.93	2.06±0.16	0.112±0.008	0.113±0.008	0.081±0.006	0.012±0.001	0.73±0.06
G	11.33±0.91	2.52±0.20	0.101±0.008	0.103±0.008	0.082±0.006	0.201±0.002	0.35±0.03
H	15.35±1.2	1.01±0.08	0.124±0.010	0.113±0.008	0.091±0.007	0.083±0.006	0.36±0.03
I	2.69±0.22	0.85±0.07	0.112±0.008	0.101±0.008	0.093±0.007	0.033±0.002	1.04±0.08
J	9.21±0.74	1.14±0.09	0.162±0.013	0.121±0.010	0.081±0.006	0.051±0.004	0.58±0.05
K	7.97±0.64	0.78±0.06	0.013±0.001	0.112±0.008	0.101±0.008	0.023±0.002	0.44±0.04

Table 1: Concentrations of heavy metals in arishta, determined by atomic absorption spectrophotometry

Standard addition technique was used to obtain the concentration of these four metals too. Table 1 shows the results obtained for the analysis of all seven metals in all eleven arishta.

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