Determination of toxic heavy metals in selected *Arishta* used in Sri Lanka

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Arishta and *Asava* are widely consumed Ayurvedic herbal beverages having a history of more than thousand years. Preparation and sale of these Ayurvedic drugs are legalized in Sri Lanka and 34 varieties of *Arishta* and 25 *Asava* varieties have been published in the Sri Lanka official Ayurveda pharmacopoeia. To ensure the quality and safety of these preparations, they should be developed to a certain standard. Hence studies for the improvement of the quality of products and quantification of constituents in finished products are of utmost importance. As an initial study, the concentrations of toxic heavy metals such as Cr, Al, Pb, Ni and Cd in *Ashvagandharishta* were determined. 12 brands of *Ashvagandarishta* were selected for the study and 10 cm^3 of each product was subjected to wet digestion prior to analysis using Graphite Furnace Atomic Absorption Spectrophotometry (GFAAS). Quantitative determinations of the above metals in12 brands of the preparations are shown in the table 1.

Table 1: Concentration of heavy metals in *Ashvagandharishta*

Metal	Max µg/ml	Min µg/ml	Mean µg/ml
Ni	4.91	0.19	1.61±1.33
Al	7.07	0.56	2.22±1.73
Cr	0.23	0.12	0.17±0.04
Pb	3.45	0.17	2.03±0.94

Cd was not present in detectable levels by GFAAS in any sample of *Ashvagandharishta.* The levels of metals present in these preparations do not exceed the reported accepted levels of toxic heavy metals in other alcoholic beverages. Different conditions of soil where the raw materials are cultivated, agricultural practices, utensils used in manufacturing process and factory conditions could be the causative factors for the presence of different levels of heavy metals in different brands of products.

Key words: *Arishta, Asava,* Heavy metals, Atomic absorption spectroscopy, GFAAS

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