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Determination of some selected heavy metals in *Aravindasava* used in Ayurvedic medicine

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Aravindasava is an Ayurvedic preparation used as a medicine to treat many children's disorders. It is also used as a vigor tonic, appetizer and a rejuvenation tonic. Fermentation is the main manufacturing process of this preparation. Concentrations of alcohols, acetaldehyde, ethylacetate, essential metals, acid values and pH values in this product have investigated and recorded previously. Use of plant materials, addition of sweetens and use of metallic utensils during the manufacturing process could contribute to a presence of heavy metals in the final product. Determination of the concentrations of these heavy metals in this product is significant to upgrade the quality and standards of these preparations to ensure the consumer safety in order to introduce it as an herbal healthcare tonic to the global market.

As an initiation step forward in this regard, the concentrations of toxic metals such as Cr, Al, Pb, Ni and Cd in 12 brands of commercially available *Aravindasava* were determined. The product was subjected to wet digestion prior to analysis using Graphite Furnace Atomic Absorption Spectrophotometry (GFAAS). Quantitative determination of toxic metals in 12 brands of the preparation showed the metal levels in □g/ml as Ni (Max 2.84, Min 0.12, Mean 1.13 ± 0.97), Al (Max 24.01, Min 2.46, Mean 9.09 ± 6.84), Cr (Max 0.38, Min 0.2, Mean 0.29 ± 0.05) and Pb (Max 0.75, Min 0.29, Mean 0.53 ± 0.10). Cd was not present in detectable levels from GFAAS.
Although these products do not consume as water, due to the non-availability of maximum contaminated levels defined by any recognized organization for these metals in herbal preparations the detected levels were compared with the WHO drinking water standards in □g/ml as Ni (0.1), Al (0.2), Cr (0.05), Pb (0.05) and Cd (0.001). If a person consumes 30 mL of this product per day, except Al the detected levels of other metals do not exceed the maximum contaminated levels defined by the WHO for 1L of drinking water.

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