

Quantification of essential metals in selected herbal wines

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Arishta and *Asava* are widely consumed Ayurvedic herbal beverages. *Arishta and Asava* in moderate quantities are consumed daily to reduce tiredness and for longevity of the individuals. Use of plant materials and addition of minerals and sweeten materials during the manufacturing process can contribute to the presence of different types of metals in these products. Analysis of these metals to provide data for human consumption is important to ensure their safety and for the purposes of standardization of these products.

Hence the concentrations of essential metals, K, Ca, Mg, Na, Fe, Mn, Zn and Cu were determined in 12 brands each of *Ashvagandarista* and *Aravindasava*. 10 cm³ of these preparations were subjected to wet digestion prior to flame and graphite furnace atomic absorption determinations.

Quantitative determination of the above essential metals in 12 brands of *Ashvagandharishta* showed the presence of Fe (min 0.00 mg/ml, max 0.02 mg/ml, mean 0.01 ± 0.005 mg/ml), Na (min 0.24 mg/ml, max 0.61 mg/ml, mean 0.39 ± 0.12 mg/ml), K (min 0.76 mg/ml, max 1.50 mg/ml, mean 1.16 ± 0.24 mg/ml), Mg (min 0.28 mg/ml, max 0.60 mg/ml, mean 0.48 ± 0.14 mg/ml), Zn (min 0.95 µg/ml, max 3.60 µg/ml, mean 1.44 ± 0.72 µg/ml), Mn (min 2.00 µg/ml, max 10.00 µg/ml, mean 4.00 ± 2.00 µg/ml) and Cu (min 0.33 µg/ml, max 0.74 µg/ml, mean 0.48 ± 0.14 µg/ml) in all brands of *arishta*. Corresponding values in the 12 brands of *Aravindasava* were Fe (min 0.00 mg/ml, max 0.03 mg/ml, mean 0.01 ± 0.005 mg/ml), Na (min 0.15 mg/ml, max 0.56 mg/ml, mean 0.34 ± 0.13 mg/ml), K (min 0.68 mg/ml, max 1.57 mg/ml, mean 1.00 ± 0.03 mg/ml), Mg (min 0.28 mg/ml, max 0.56 mg/ml, mean 0.39 ± 0.08 mg/ml), Zn (min 0.18 µg/ml, max 9.90 µg/ml, mean 2.69 ± 1.18 µg/ml), Mn (min 1.00 µg/ml, max 6.00 µg/ml, mean 3.00 ± 2.00 µg/ml) and Cu (min 0.10 µg/ml, max 0.62 µg/ml, mean 0.42

± 0.10 µg/ml). Results demonstrate that both types of preparations contain fairly similar concentrations of metals in solutions.

If a person consumes a maximum dosage of 10 ml of these preparations at a time for 3 times a day the intake levels of essential metals do not exceed the daily recommended allowances of these metals for an adult.

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