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## Determination of trace elements of Ethiopian, Vietnamese and Japanese women using high resolution IC-PMS

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**Background:** Trace elements are required by humans and other living organisms throughout life in small quantities. Both insufficient and excessive intakes of trace elements can have negative consequences on human health. However, there is scarcity of information on serum level of trace elements in different population groups of the world. Therefore, this study was aimed at determining serum levels of trace elements in Ethiopian, Japanese and Vietnamese women.

**Methods:** Random samples of healthy women who were referred for routine hospital laboratory check up in the cities of Hanoi, Sapporo and Gondar were invited to participate in the study. Serum levels of magnesium, zinc, copper, iron, selenium and calcium were determined using an inductively coupled plasma mass spectrometer. Furthermore, body mass index of each study participant was determined.

**Results:** The mean $\pm$ SD serum concentration of zinc ( $\mu$ g/dl), copper ( $\mu$ g/dl), iron ( $\mu$ g/dl), selenium ( $\mu$ g/dl) and calcium (mg/dl), respectively, was 76.51 $\pm$ 39.16, 152.20 $\pm$ 55.37, 385.68 $\pm$ 217.95, 9.15 $\pm$ 4.21 and 14.18 $\pm$ 3.91 in Ethiopian, 111.49 $\pm$ 52.92, 105.86 $\pm$ 26.02, 155.09 $\pm$ 94.83, 14.11 $\pm$ 3.41 and 11.66 $\pm$ 2.51 in Vietnamese and 60.69 $\pm$ 9.76, 107 $\pm$ 156, 268 $\pm$ 128, 8.33 $\pm$ 3.65 and 11.18 $\pm$ 0.68 in Japanese women. Ethiopian women had significantly higher level of serum calcium than Vietnamese women ( $P<0.05$ ) and Japanese women ( $P<0.05$ ). Although, the mean calcium concentration in Vietnamese women was higher than women from Japan, the difference was not statistically significant ( $P>0.05$ ). Furthermore, as compared to Japanese women, there was significantly high iron and copper concentration in Ethiopian women ( $P<0.05$ ). Serum selenium and zinc levels were high in Vietnamese than Ethiopian women.

**Conclusion:** The study revealed that there is remarkable difference in serum concentration of trace elements in women of different countries implying difference in trace elements in the food or soil of a particular country. Given the importance of such minerals in health of populations, wider comparative studies are recommended to assess the level of trace element deficiency in Vietnamese, Ethiopian and Japanese women.

### Biography

Zinaye Tekeste Mehari has completed his MSc from Addis Ababa University. He is an assistant professor at Addis Ababa University, Aklilu Lemma Institute of Pathobiology. He has been conducting research on HIV, nutrition, TB, malaria, intestinal parasites and other areas of research. He has published many papers in reputed journals and has been serving as invited reviewer for international journals.

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