

## **ABSTRACT**

### **THE USE OF FREE RANGE HENS' EGGS IN THE ASSESSMENT OF SELENIUM STATUS OF A COMMUNITY.**

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Evidence of selenium deficiency is present in children with oedematous malnutrition. There seems to be a greater prevalence of this type of malnutrition in Clarendon and St.Catherine in Jamaica. As a result, it has become important to identify a monitor, for community use, to identify those at risk of Se deficiency.

Brätter used free-range hens' eggs as a monitor of high Se status in communities in Venezuela. The same monitor material was therefore tested in communities with low and low-normal Se status in Jamaica. Egg, hair and soil samples were collected from six communities, ( two of which were located in St. Catherine, and one in Clarendon ). Egg samples were analysed for Se by INAA while hair and soil samples were analysed by Fluorometry.

A strong positive linear correlation was obtained between egg- yolk and egg-white Se concentrations. A positive linear correlation was also obtained between the Se concentrations of soil and egg-yolk. However, the latter relationship was not strong enough to merit the use of eggs as monitors of Se status in the community. There was also a weak positive linear correlation between the Se concentrations of soil and hair.

The Fluorometric and INAA methods were compared, and it was found that the INAA method consistently gave values 2 - 12% higher.

Soil Se concentrations were generally on the low side of normal, but the range measured was not as large as expected: the lowest values were not extremely low. No high values for soil Se concentration were obtained.

Egg Se concentrations in both yolk and white were similar to what were regarded as "normal" values in Brätter's study in Venezuela.

Hair Se concentrations were also within the reference range for children in North Libya.

Individual egg (yolk or white) Se concentrations did not reflect closely either the Se concentrations of soil or hair collected from the same area, though there was a statistically significant positive correlation between soil and egg-yolk Se concentrations.

The Se concentration of hens' eggs may therefore not be a useful monitor of selenium status in Jamaica. However, this study suggests that one must take into consideration other factors that may affect the availability of selenium in the community before we can dismiss the theory of this study. Therefore, further investigations could be carried out using larger numbers of minimally contaminated soil samples per area, and measuring, in addition to selenium concentration, other factors affecting selenium availability.