

Plant-Soil Interactions an Important Consideration Guide in Advising on Healthy Food for Human Wellbeing

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Received: April 03, 2017; **Published:** April 20, 2017

Humans are what we eat and drink. As noted by Arhin., *et al.* [1], the sources of many of the essential elements for human developments obtained through healthy eating originate from soils that are formed from the underlying rocks. For instance, rocks formed from same melt can weather to different soil types depending on the climatic conditions. This can lead to differences in elements concentrations and distributions. This concentrations and redistributions of elements in soils and ultimately in food confirms the great geochemical variations of elements in the landscape. Assuming the geochemical variations of elements in soils [2] to be a fact, then the generalization that certain food-groups are enriched in some specific essential nutrients needs a second look. The reason is a healthy soil ecosystem provides plants the nutrients to produce the healthy food crops, which indirectly ends in the bellies of humans. The current spate of the changing climate which is believed to be impacting on the soil chemistry has introduced the fear of food insecurity, which is rather making the agriculturists to adopt innovative ways to increase food production via a lot of means. This is one area which nutritionist should be thoughtful when advocating for people on types of food for healthy eating. It is obvious at the open markets about the high prices of organic foods over the others. That alone is an indication that no food groups can have the health of the individual food contents to be the same. [3] report the environmental effects of conventional and organic farming systems.

To further demonstrate and confirm the fear of the blanket advice by nutritionist with the least regards to the geographic location (particularly influence of geology and local environmental activities on concentrations of trace elements) of the general food groups, a study on selenium content in some food crops in Talensi District of Ghana was investigated by [4] to emphasise and confirms [3] work. It is a fact that the lives of humans are contained in soils because the soils control the health of plants growing in them which are eating as food for our growth. This indirectly renders soils, the health of plants and human health from correct nutrition inseparable. The study found differences in Se concentrations in maize (Figure 1) which were explained to be an attribute of the underlying geology.



Figure 1: Type of maize at Talensi District of Ghana.

It realized the concentrations of maize to be much lower than corresponding staple food crop millet (Figure 2). However, maize is used for livestock, poultry and human beings. Over 60% of Ghanaian people eat maize and it is one of the most popular cereal grains in the world and because the nutritionist has advised that it is a good source of antioxidant the entire population will opt for it. It is also a right source of many vitamins and minerals. For this reason, a moderate consumption of whole-grain maize may well fit into a healthy diet. Conversely Se in maize contributes great proportion of antioxidant that human body needs. Therefore, in the case of some areas in Talensi District where Se content in some maize were recognized to be low or deficient, suggest the advice provided by the nutritionist will not work. The consequence will be Se related diseases.



Figure 2: Millets rich in Se at Talensi District of Ghana.

To conclude on this special case which may be a case for many other food crops the geographical space where they are cultivated has influence on the essential element contents. The author is not disputing the fact that whole-grain maize or corn as known elsewhere is not healthy as any other cereal grain and not rich in fibre and many vitamins, minerals and antioxidants but the local geological processes and soil forming mechanisms can impact on the essential nutrients. Therefore, for the avoidance of these and in order not to have shocks along the line of advising people on healthy eating we should if possible factor in the local soil environments. The surest way to do this is to work with geoscientists particularly medical geologists. What stops the two disciplines (Geoscientist and Nutritionist) to work together if the objective is to create healthy human development?

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Volume 8 Issue 4 April 2017

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