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Benefits of Plant Nutrition: A Review

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Abstract---*There are many research and studies, which indicate the importance of a vegetarian and natural diet, due to the importance of the system in maintaining a healthy body content differed one, refraining from eating foods consisting of animal sources such as meat, fish, eggs and milk, and resorting to nature as a source of food. As natural or vegetarian nutrition is considered the best way for some people to have a healthy body, but others support refraining from eating processed foods such as white flour or refined sugar. There are vegans, who do not eat foods that are not organically grown. A small number of people eat only raw food and stay away from cooked food. And we call them natural or vegan contain almost all of the mineral and organic nutrients established as essential for human nutrition, as well as a number of unique organic phytochemicals that have been linked to the promotion of good health because the concentrations of many of these dietary constituents are often low in edible plant sources.*

Keywords---*Plant Nutrition, Pollution, Minerals.*

I. INTRODUCTION

1.1 Background

When you follow a vegetarian diet, it is related to many environmental and health matters. And whoever decides to switch to a vegetarian diet for health considerations, he is fully aware that vegetarian food contains small amounts of fats, specifically saturated fats, and therefore does not at all contain cholesterol. Therefore, avoiding animal foods reduces the risk of heart disease, obesity, and many other health problems although animal food contains large amounts of proteins, minerals, and vitamin B12. However, following a balanced vegetarian diet provides the body with all the essential nutrients, which enables the individual to obtain a healthy body and prevent disease. However, international organizations have expressed their approval for a vegetarian diet, such as the American, British, Canadian and Irish Nutrition Organization(USEPA,1993; Beatty, *et al.,* 2010).

1.2 Studies support the vegetarian diet

The American Dietetic Association ADA, the most influential organization in the world, specifically in the field of nutrition, published in 2009 its position in favor of plant nutrition. As she emphasized in a published document: "Following a well-planned and vegetarian diet will benefit the health benefit of the individual, as it protects against disease." The association considered that the studied vegetarian diet can be suitable for all stages of life. It is therefore useful for pregnant, breastfeeding and pregnant mothers, as well as adolescents, children and athletes (Hinsinger, *et al.,* 2009).

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The association also stated in the document that “often, it was found that a vegetarian diet is associated with health benefits, such as low cholesterol levels in the blood, lowered risk of heart disease, low blood pressure, and reduced risk of type 2 diabetes. Vegetarians tend to have a lower BMI, as they are less likely to develop cancer. However, plant nutrition contains small amounts of saturated fats and cholesterol, but it is rich in dietary fiber, magnesium, phosphorous, vitamin E and C, folic acid, organic dyes, carotenoids, and flavonoids, along with other phytochemicals(SCF, 2002; Miwa and Fujiwara, 2010). These differences may explain some of the health benefits, for those who follow a varied and balanced vegetarian diet.In 2003, the Nutrition Association of the United States and Canada issued a document stating that a properly planned diet that relies only on natural plants is a nutritionally complete health system suitable for all ages, including infants, children, adolescents, and women(Kobayashi, *et al.*, 2010). Pregnant and lactating women, the document also pointed out the benefits of the vegetarian diet and its benefits in preventing common diseases, noting the low rates of death from heart diseases, the low incidence of prostate cancer, colon cancer and diabetes(Eticha, *et al.*, 2010). As for the American organization, "Doctors for Responsible Medicine" (PCRM), it consists of 5,000 members, including doctors and scientists. Where the organization recommended a diet based on plant and natural ingredients. Where you can view more scientific studies, and detailed information on the organization's website, which describes the importance of a vegetarian diet, which protects you from diseases that may affect the heart and blood vessels, as well as protecting you from type 2 diabetes, and avoiding obesity(USEPA, 2000; Eticha, *et al.*, 2010; Kobayashi, *et al.*, 2010).

1.3Vegan food more healthy than eating meat

Global research measures cholesterol in the blood, there are many studies and research that indicated through their results the importance of a vegetarian and natural diet, especially since "China Research" is a model that demonstrates in detail the benefits of plant nutrition. The China study, is a comprehensive scientific research that includes conducting a nutrition survey on the population of the universe. This research is being carried out in cooperation between Cornell University, Oxford University and the Chinese National Center for Preventive Medicine(USEPA, 2000; FAO, 2014).. The research included tracking 6,500 individuals, who live in 65 rural or semi-rural provinces in China, with the aim of documenting their nutritional habits, studying their lifestyle, and monitoring disease and deaths in those areas. The participants in the study were subjected to blood and urine tests, and their diet was examined for three days, in addition to conducting laboratory analyzes, but they participated in answering the questions of the study's questionnaire. The research, led by Professor Colin Campbell, came from the Department of Nutritional Biochemistry at Cornell University. Where the research was published in 2005 in a book called The China Study. This book may summarize hundreds of medical studies from around the world. It attempts to convey an updated picture of the nature of the relationship between food, disease and health. Where, through China's research, Campbell reached results that demonstrate that a varied vegan diet, without containing animal products, is a major means of preventing chronic diseases, which are characteristic in the western world in particular, and it also helps in the cure of these diseases. However, China's research is looking for measures of strange diseases, or diseases that are always abundant, such as cancer, diabetes and heart disease. One such measure is the measurement of the level of cholesterol in the blood, which is measured in milligrams per deciliter (mg / dl).

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The normal cholesterol values are mentioned in the United States of America, ranging between (170 L to 290 mg / dl)(USEPA, 2000; EFSA, 2008).

China's research also indicated that there is a statistically significant relationship between cholesterol levels in the blood and between 12 types of cancer, and it can be said here that, the lower the level of cholesterol in the blood, the lower the incidence of diseases. This is in addition to confirming the more known relationship between cholesterol and heart disease. Professor Campbell, who oversees China's research, said that our perceptions of "natural" values are only appropriate for Western people, that is, those who consume the Western diet. This is what happens, for example, our "normal" cholesterol levels pose a high risk of heart disease. Unfortunately, heart disease is also "normal" in the United States of America. And that, over the years, set standards according to what we see in the West (WHO, 1998;Fu¨hrs, *et al.*, 2010).

Campbell recommended the world not to be concerned about eating small quantities of animal products in the food, "I do not intend to plan intentionally to eat small amounts of meat, and to include them in your daily diet. But you should try to avoid all animal products(USEPA, 2000;Galloway, et al., 2008).

1.4 General Considerations for mineral nutrition

Minerals can be grouped into three categories: the macronutrient minerals such as (N,S, P, Ca, K, Mg) that are needed in highest concentration by plants (mg/gdry weight range), the micronutrient minerals such as (Fe, Mn, B, Cl, Zn, Cu, Mo,Ni) that are needed in lesser amounts (¹g/g dry weight range), and various generally nonessential minerals such as Na, F, Se, Cr, I that are found in plant tissues in varying concentrations that's referee plant's ability to increase the total content of a mineral from any one of these categories always depends on soil composition and the availability of that mineral in the plant's environment(Graham, *et al.*, 2007; Punshon, *et al.*, 2009).

Different improvement strategies may be needed for essential and nonessential minerals, depending on the existence of specific or nonspecific transport systems .Plants appear to be composed of relatively few different celltypes, cell types is thought to perform a distinct physiological function and, consequently to have a unique ionone the phenomenon of cell-specific accumulation of mineral elements in plants. They describe the techniques used to determine both the tissue and subcellular distributions of mineral elements and present the tissue distributions of diverse elements including K, P, Ca, Na and Cd. They speculate on the physiological reasons for these distributions and the transport processes that are likely to generate them(Watanabe, *et al.,* 2007; Kobayashi, *et al.,* 2010).They observe that the accumulation and tissue distributions of Ca and Na and Cd can be defined by the expression of key transport proteins and suggest how this phenomenon might be utilized to prevent the accumulation of toxic elements by plants the misimpression of genes encoding B transporters alter the uptake and distribution of B in plants, the expression of various genes encoding transport proteins that impact the uptake and distribution of Fe in plants. Indeed, the role of transport proteins in the uptake and distribution of mineral elements is highlighted by many articles expression of genes affecting transport processes influence plant adaptation to soils with extreme phyto availabilities of mineral elements (Nestel, *et al.,* 2006; Punshon, *et al.,* 2009).

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II. CONCLUSION

The essential of mineral elements required by humans and other animals enter the food chain primarily through plants. The concentrations of mineral elements in edible plant tissues are therefore of fundamental importance to human nutrition. It is estimated that up to two-thirds of the world's population might be at risk of deficiency in one or more essential mineral element, with deficiencies of Fe and Zn being most common, the concentrations of mineral elements in edible crops can be increased by the judicious application of mineral fertilizers by cultivating genotypes with higher concentrations the bioavailability of mineral elements increased through crop husbandry, breeding or genetic manipulation this article describe how transport processes and accumulation affect the concentrations of mineral elements to assess the potential for increasing the concentrations of essential mineral elements.

REFERENCES

[1] Beatty PH, Anbessa Y, Juskiw P, Carroll RT, Wang J, Good AG 2010. Nitrogen use efficiencies of spring barley grown under varying nitrogen conditions in the field and growth chamber. *Annals of Botany* 105: 1171–1182.

[2] European Food Safety Authority (EFSA) Scientific opinion of the panel on contaminants in the food chain on a request from the European Commission on Polycyclic Aromatic Hydrocarbons in Food. *EFSA J.* 2008;724:1–114. [Google Scholar].

[3] Eticha D, Zahn M, Bremer M, et al. 2010. Ranscriptomic analysis reveals differential gene expression in response to aluminium in common bean (Phaseolus vulgaris) genotypes. *Annals of Botany* 105: 1119–1128.

[4] Food Agriculture Organization (FAO) Statistics and Information Service of the Fisheries and Aquaculture Department/Service. 2014. FAO; Rome, Roma: 2014. *Fishery and aquaculture statistics* 2014.http://www.fao.org/3/a-i5716t.pdf [Google Scholar].

[5] Fu¨hrs H, Behrens C, Gallien S, et al. 2010. Physiological and proteomic characterization of manganese sensitivity and tolerance in rice (Oryza sativa) in comparison with barley (Hordeumvulgare). *Annals of Botany* 105: 1129–1143.

[6] Galloway JN, Townsend AR, Erisman JW, et al. 2008. Transformation of the nitrogen cycle: recent trends, questions, and potential solutions. *Science* 320: 889–892.

[7] Graham RD, Welch RM, Saunders DA, et al. 2007. Nutritious subsistence food systems. *Advances in Agronomy* 92: 1–74.

[8] Hinsinger P, Bengough AG, Vetterlein D, Young IM. 2009. Rhizosphere: biophysics, biogeochemistry and ecological relevance. *Plant and Soil* 321: 117–152.

[9] Kobayashi T, Ogo Y, Aung MS, et al. 2010. The spatial expression and regulation of transcription factors IDEF1 and IDEF2. *Annals of Botany* 105: 1109–1118.

[10] Miwa K, Fujiwara T. 2010. Boron transport in plants: coordinated regulation of transporters. *Annals of Botany* 105: 1103–1108.

[11] Nestel P, Bouis HE, Meenakshi JV, Pfeiffer W. 2006. Biofortification of staple food crops. *Journal of Nutrition* 136: 1064–1067

[12] Punshon T, Guerinot ML, Lanzirotti A. 2009. Using synchrotron X-ray fluorescence microprobes in the study of metal homeostasis in plants. *Annals of Botany* 103: 665–672.

[13] Scientific Committee on Foods of EC (SCF) European Commission, Health, and Consumer Protection Directorate-General.; Brussels: 2002. The Opinion of the Scientific Committee on Food on the Risk to Human Health of PAHs in Food. SCF/CS/CNTM/PAH/29 Final. [Google Scholar].

[14] US Environmental Protection Agency (USEPA) U.S. Environmental Protection Agency. Washington, DC: Office of Research and Development; 1993. Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA/600/R-93/089; p. 1993.

[15] US Environmental Protection Agency (USEPA) 3rd ed. Office of Water; Washington DC: 2000. Guidance for Assessing Chemical Contaminant. Data for Use in Fish Advisories. *Fish Sampling and Analysis.* (2000. [EPA 823-R-95-007]) [Google Scholar].

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[16] Watanabe T, Broadley MR, Jansen S, et al. 2007. Evolutionary control of leaf element composition in plants. *New Phytologist* 174: 516–523.
[17] World Health Organization (WHO) 1998. Environmental Health Criteria 202, Selected Non-heterocyclic PAHs. *Geneva.* [Google Scholar].

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