THE ROLE OF SOME FUNCTIONAL FOODS IN THE PROMOTION OF HEALTH IN PRE-SCHOOL CHILDREN

Rashid Deane and ***Omorogieva Ojo***
School of Chemical and Life Sciences, University of Greenwich, London

Foods classified as functional, such as the sulphur containing amino acids (A.As.), positively affect one or more functions in the body beyond adequate nutritional effects, leading to improved state of health and well being and/or a reduction of disease risk. The objective of the present study was to assess the role of sulphur containing A.As. (methionine and cysteine, threonine and tryptophan) in the promotion of health in Nigerian pre-school children.

129 children (age, 4.13 ± 0.07 yrs) were studied during July to August, 1996, in Benin-City, Nigeria. Food frequency questionnaires were completed by the parents/guardians of the children in order to evaluate their usual food intake. Analysis of nutrients in food was based on food composition tables and diet 5 computer package. Height, weight, mid upper-arm circumference (MUAC) were measured according to standard procedures and expressed as Z-scores. Clinical features of malnutrition and MUAC below −2 Z-score were used to classify children into normal and malnourished categories. Results were statistically tested and expressed as means ± SEM.

The results in table 1 show that, there were significant differences ($P<0.05$) between normal and malnourished children with respect to the intake of sulphur containing A.As. and the other essential A.As. investigated. Similarly, differences between the two groups with respect to anthropometric indicators were significant ($P<0.05$).

Table 1 shows significant differences ($P<0.05$) between normal (Norm) and malnourished (Mal) children in sulphur containing A.As., some essential A.As. and anthropometric indicators.

	Met. g/day	Cys. g/day	Thr. g/day	Try. g/day	Lys. g/day	Phe. g/day
Norm n=83	0.81± 0.02	0.53± 0.01	1.49± 0.031	0.45± 0.01	2.46± 0.04	1.69± 0.03
Mal n=46	0.68± 0.02	0.44± 0.02	1.25± 0.04	0.38± 0.01	2.09± 0.07	1.45± 0.06

	Arg. g/day	Total Prot g/day	Energy kcal	HFA Z-sc.	WFA Z-sc.	WFH Z-sc
Norm n=83	2.63± 0.05	40.34± 0.66	1514.40± 21.84	-0.33± 0.12	-0.81± 0.09	-0.71± 0.09
Mal n=46	2.52± 0.09	33.58 ±1.10	1157.28± 35.04	-1.29± 0.23	-1.71± 0.13	-1.19± 0.14

The findings suggest that, although the malnourished children were able to meet the safe levels of intake for protein, the manifestation of clinical signs of malnutrition and anthropemetric deficits may have resulted from significantly low energy intake and deficiencies in sulphur containing A.As. compared with the normal group. One method for cyanide detoxification requires the use of sulphur containing A.As. Therefore, enhancing diets in Nigeria and other areas of the world where cassava is a staple food with sulphur containing A.As. may reduce the effects of hydrocyanic acid in iodine and protein deficiencies, diabetes and also increase the immune resistance of individuals to associated risk factors.

References.

1. Blades M.; Functional foods or nutraceuticals. Nutrition and Food science. 2000; 30 (2&3): 73-75.
2. Ojo. O., Deane R., Amuna. P.; The use of anthropometric, clinical and socio-economic parameters for early identification and categorisation of nutritional risk in pre-school children in Benin-City, Nigeria (1999, unpublished).
3. Latham M.C.; Human nutrition in the developing World. FAO, Rome. 1997: 459