PHOSPHORUS, SODIUM, POTASSIUM IN CEREALS AND THEIR PRODUCTS BEEN PRODUCED AND CONSUMED IN GREECE

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Στους γονείς μου

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CONTENTS

SUMMARY

Phosphorus, sodium and potassium are important to human nutrition. In this work the content of these minerals in cereal grains and products has been determined.. Phosphorus is an essential component of nucleic acids, DNA and RNA, and thus makes it necessary growth. Sodium is the most important cation because it dictates the volume of extracellular fluid (ECF) and its concentration affects osmotic concentration of both ECF and intracellular fluid (ICF). Moreover, it keeps the neutrality of the body while it reacts with elements with acidic reactions. Sodium is also essential for glucose absorption and transportation of nutrients through the membranes [Macrae, 1993; Agelikakis, 1990]. Potassium is characterised by its multifunctionality, affecting functions of the cardiovascular digestive, digestive, endocrine, respiratory, renal and neurological systems. It is a cofactor for enzymes involved in carbohydrate storage, energy transaction, cellular growth and others.[Macrae,1993].

Thirty one different grain and grain products, were tested by spectrophotometric molybdovanadate method, for phosphorus content and flame photometric method for sodium and potassium content. All values are expressed in mg/100gr. of food and are given as the arithmetic mean of samples ± standard deviation. Also, it must be mentioned that deionized - distilled water, was used for cleaning and preparation of the samples. Mineral (P, Na, K) values of analysed samples of cereal grains and products were compared with literature values of other countries (USA, Finland, India, Malawi, Papua-New Guinea, Australia).

It was found that rich sources of phosphorus are grain seeds and wholemeal bread; of sodium grain seeds and grain products, (mainly due to the bread) and biscuits; of potassium grain seeds, bread made with yeast, grain products with chocolate, frumenty and corn flakes

The mean daily elements (P, Na, K) intake (gr./adult/day) of total cereal consumption (gr./adult/day) when compared for the two five-year periods, 1980-1985 and 1985-1990, it resumes that there is a slight increase of phosphorus, sodium and potassium intake. Moreover, the average cereal consumption (Kg/year/capita) in Greece, during the period 1951-1985 decreases, whereas there is a slight increase for the last five-year period 1985-1990.

Phosphorus, sodium and potassium intake of flour, cereals, bread, rice, pasta and rusks form the 65.86%, 153% and 27.16% of the RDA and low end of ESADDIs, respectively.