

BIO-ELEMENTS IN FUNCTIONAL FOODS

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Abstract

The abstract deals with justification of efficiency in using the bio-element classification that considers the real meaning of the Latin prefixes.

Materials for this investigation were bio-elements that are used in functional foods and feeds, and the method of work was analysis of existing classifications and introducing a new one.

Since the rate of bio-element consumption for different population groups as well as specific farm animals in different age categories vary, it is easy to justify the bio-element content for specialized products, but it is difficult to do this for functional products intended for the majority of people. The bio-element classification that accounts the real meaning of the Latin prefixes allows solving this problem by introducing the concept of the functional average daily dose. The classification is invented by the first author and is supported by the co-authors. The functional average daily dose will be 1 - 9 ng for the first order nanoelements, 10 - 99 ng for the second order nanoelements, 100 - 999 ng for the third order nanoelements; 1 - 9 mcg for the first order microelements, 10 - 99 mcg for the second order microelements, 100 - 999 mcg for the third order microelements; 1 - 9 mg for the first order milielements, 10 - 99 mg for the second order milielements, of the third order 100 - 999 mg for the third order milielements and 1-9 g for the third order macroelements. For example, about 80 - 90% of people lack magnesium. The average daily requirement for a normal healthy person for magnesium is 350 - 500 mg. In case of intensive physical activity, the dose is increased to 1,000 to 1,200 mg. If we take the functional daily dose for a human equaling 500 mg of magnesium, i.e. we consider magnesium as a third order millielement (milielement). The recommended portion of the functional product containing 100 mg of magnesium will provide 20% of the average daily demand. But 999 mg of magnesium in the portion of the functional product is also permissible. The exception is accumulating potentially toxic bio-elements.

The authors suggest using the introduced classification for justifying the content of most bio-elements for people and animals in functional foods (feeds).

Key words: *Functional foods, Functional feeds, Bio-elements, Nanoelements, Microelements, Millielements, Macroelements.*