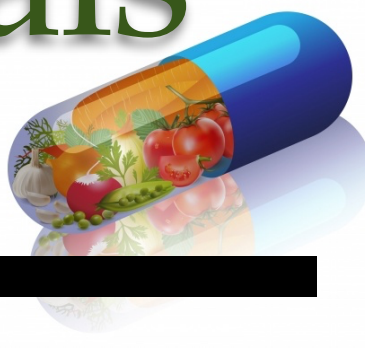
Nutraceuticals

Is that the FUTURE?



By Raquel Lima

Conventional wisdom in Europe draws a strict distinction between **nutrition/food** stuffs and medicines (or pharmaceuticals). According to this conventional view, foodstuffs primarily provide nutrition in the form of substances which the human body needs for normal development and maintenance of bodily functions. Medicines, on the other hand, are always seen as therapeutic agents in the context of disease and health. The more knowledge is obtained about the health-promoting effect of foods, the more blurred this seemingly strict separating line becomes between these two product groups. This is reflected in the word nutraceutical combining both the idea of nutrition and the concept of the pharmaceutical. And it is now a well established term.

THE OBJECTIVE

The food supplements are intended to supply to the body via mouth-gastrointestinal tract such substances which are desired for the body but are not or not provided adequately via the food or via other delivery routes (eg the skin). The question as to which substances are now desired in particular for the body is subject to change. We want to deal with this change and take a look at the emerging food supplements.

THE FIRST CATEGORY

A first category of dietary supplements aims at **delivering to the blood** (and therefore the body as a whole) vitamins and minerals in order to keep them within recommended ranges. 79% of men and 86% of women in Europe fall short of the recommendation for folic acid intake. The shares are rising with increasing age.

82% of men and 91% of women fall short of the recommendation for vitamin D intake. This is particularly true for young adults and senior citizens.

A risk factor for the population is iodine. If no iodized salt is used, 96% of men and 97% of women do not reach the recommendation for iodine intake .

For women of childbearing age the iron intake is problematic. More than 75% of women at this age rate the iron intake.

Another critical nutriment is calcium. The consumption of the female adolescents, older men and women are bellow than the recommendation.

These deficiencies in daily nutrition of many individuals can not be compensated just by normal food but they can be compensated by the supplements.

A SECOND CATEGORY

A second category of food supplements is concerned with individual **health effects** that are to be achieved by them. They are predominantly **concentrates of substances,** individually or in **combination with mineral substances or vitamins.** As well, concentrates of substances that have passed through the animal food chain (eg omega-3 fatty acids) are also included. You find concentrates of polyphenols,OPC (oligomeric proanthocyanidins), lovastatin from red rice, etc. They are supposed to support individual organ functions or blood values, protect organs or cells, have an antioxidative action, etc. Often, active substances are present in a low dosage, which are considered medicine if administered in high dosage.

"Health Claims" are used in order to sell this category of food supplements, such as the following:

- Supports hair to growth;
- A valuable contribution to natural and healthy beauty;
- Supports the liver;
- Contributes to healthy fat metabolism.

Most of the health effects which are "claimed" for these food supplements have been identified by traditional use or have been detected more or less by chance ("Grandma's home remedies, Indian medicine, Ayurveda and many other sources). For this category of food supplements, there are still new developments to be expected, since the effects of different plant derived substances on the human organism are still being intensively investigated. This research, however, is predominantly oriented according to the logic: "Here we have a plant or a fruit with interesting substances. Let us look what these substances can do to the human organism". This logic is often paired with the esotheric philosophy "natural = good, synthetic = bad".

THE THIRD CATEGORY

The third category of food supplements is just in the making. It takes a completely different approach. We ask ourselves, "What is the greatest threat to human health and how can we influence this by intake of molecules from "super food" or food supplements?" The answer to the question about the greatest threat to human health is inevitable: "Aging". Aging so far affects every human being and ends always fatally. Strange enough, however, aging is conventionally not regarded as a disease, neither in classical medicine, nor in legislation, jurisprudence and nor in society. Nearly everyone has the attitude: Aging is natural. Therefore do not challange it, but "endure in dignity". However, an increasing number of consumers, producers and scientists are starting to challange this attitude. If we ask scientifically about the main causes, main mechanisms of aging, then we will inevitably identify the continous increase of deposits in the human body, which the natural human metabolism can not remove, as one of the main contributer to aging. The aging person is accumulating "waste materials". Among these waste materials, the Advanced Glycation End-products and the Advanced Lipoxidation End-products are particularly prominent. They accumulate continuously starting even in the fetus and throughout our whole life ("From womb to tomb").

It is precisely the slow but continuous build-up of those AGEs and ALEs in the body that makes them an ideal field for the application for food supplements. If food supplements could carry such molecules which **can dissolve AGEs** or **ALEs** or which can at least retard their build up, they would be ideal products for a life long consumption. Such molecules are being identified presently,such as EGCG = epigallocatechin gallate, or various thiazolium compounds, thiamine pyrophosphate, inositol, pyridoxamines, and also old acquaintances from the antioxidant arena such as resveratrol and coumarin. In view of the demographic and purchasing power development in Europe and almost all other developed countries, anti-aging products (anti-aging supplements) will become a sector in the whole food industry, as demand for quantity will rise inevitably and price will not be an issue.