

# Background, Present and Future of Food Supplements

İbrahim Adnan SARAÇOĞLU

Chief Advisor to the President of the Republic of Turkey, 06560 Bestepe-Ankara/TURKEY

E-mail: saracoglu@profsaracoglu.com, isaracoglu@tccb.gov.tr

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**Abstract:** In this study include the opinion of why the necessity of the food supplements is changing throughout many years. In addition, the methods of manufacture of food supplements and point of view of this method were discussed.

Food supplements and its role of the natural nutrition and effect on the human health should be researched with in terms of holistic view not research as isolated from natural media. When the researches are carried out with holistic view, many mistakes of research and development (R&D) project results of food supplement can become more clearly known.

**Key words:** Food supplements, Natural nutrition, Health effects, Seeds

## 1. Introduction

A group of researchers from Harvard University, in the mid-50s, explained that lycopene, a pigment in the carotenoid that gives to tomato red color, was a powerful antioxidant and was effective in cancer control. Such a result was caused tremendous impact throughout the world when was announced by the Harvard University research group. After the publication of this work thousands of scholars began researching this kind of study. They started to investigate secondary metabolites in different vegetables, grains and fruits. The secondary metabolites were isolated from tens of vegetables, fruits and cereals then it was serviced with capsule (tablet) form to people (See Table 1). In those years, such a slogan was made by some scientists said "in a close future, you will receive a few tablets a day so that you will meet the bodies all of the daily nutritional needs". In the early nineties, more than a thousand pure secondary metabolites or standardized extracts of these metabolites were produced in capsule form. The showcases of pharmacies and the rayons of drogery shops were filled with hundreds of kinds of "food supplements".

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**Corresponding author:** İbrahim Adnan SARAÇOĞLU, President of Republic of Turkey, Chief Advisor, e\_mail: saracoglu@profsaracoglu.com, isaracoglu@tccb.gov.tr

**Table 1.** Examples of some secondary metabolites isolated from vegetables in food supplements.

Vegetable	Secondary metabolite
Broccoli	Quercetin, Sulforaphane, Kaempferol, Isothiocyanates
Soybean	Genistein Daidzein, Glycitein, Lunasin, Lectin [13]
Cabbage	I3C (indol 3 carbinol)
Carrot	Beta-carotene, Lycopene, Polyacetylenes [14]
Broccoli sprouts	Sulforaphane
Tomatoes	Lycopene
Fish	Omega -3
Ginkgo biloba	Ginkgo flavonglycosid
Pineapple	Bromelain
Artichoke	Cynarine
Fresh Grape	Resveratrole

Some manufacturers tagged the statement "beta-carotene capsules for cancer prevention" on the food supplements. The FDA has introduced a requirement the clinical working condition so that it can be written. Clinical studies were shown that beta-carotene "food supplements" was triggered lung and stomach cancer at high rates [1, 2, 14].

Omega-3 "food supplements" have been presented to the market as an indicating that it is helpful and supportive for cardiovascular diseases. However, clinical studies with omega-3 "food supplements" have shown that these capsules do not have the feature of cardiovascular disease [3].

Clinical trials have shown that taking omega-3 fatty acids in capsule form as "food fortification" also increases the risk of prostate cancer [4].

The results of clinical trials revealed that enriched capsules made of bromelain secondary metabolites from pineapple triggers gastritis and ulcer and especially it mustn't used with on gastritis, reflux or ulcer complaints [5,6].

It has been claimed for many years that selenium and / or vitamin-E "food supplements" have the power to prevent prostate cancer. Clinical trials were shown that selenium and E-vitamin, or both of them, there was no effect on prostate cancer when used together [7, 8].

## 2. Food Supplements and Natural Nutrition

On the light of the mentioned above clinical studies, is it hazardous the consume of natural foods due to the increased the cancer risk which were contained the flavonoids (such as beta-carotene, genistein, daidzein, apigenin) or long chain unsaturated fatty acids (such as omega-3)? For example, beta-carotene tablets are obtained from carrots. It is triggering lung or stomach cancer so should we not use carrots in our salads or not drink freshly squeezed carrot juice? Omega-3 are present at fish, prostate and breast cancer increase the risk, should we be careful in the fish consumption? The genistein is present at the soybeans and it trigger breast and prostate cancer so shouldn't we consume it? The answer of these questions is below the "Pro / Anti" heading. Foods are one of the factors responsible for the increase in cancer as well as the changing the proportion of flavonoids, minerals, vitamins, fatty acids, proteins, carbohydrates in the content, food handling, adding additives, or by purifying or extracting one or more of the ingredients in the content, these don't obey the biological conservation principles. When the total biological natural balance of the food deteriorates, the feature of the food's balanced functionality and functioning is also changing in the body.

In the Far East Countries (China, Japan, Thailand, India) breast and prostate cancer is much less common than in Europe and America. This is mainly due to soybean which is place on the top among the foods that these countries are predominantly consuming. Genistein, which is found in the isoflavone group and soybean, efficient to prevent breast and prostate cancer [9]. This view is partly right and partially wrong. The right one is that the soya is protective and preventive in prostate and breast cancer. The wrong is to reduce the protective and preventive potential of the soybean containing over seven thousand functional active substances to a single agent (genistein). As a matter of fact, it has been proven by clinical trials that breast cancer is triggered by the genistein in tablets taken as "food supplement"[10-12].

The enrichment technique applied for standardization is contrary to the "biological conservation principle". The standardized extract obtained from the preferential enrichment of one or two secondary metabolite due to its bioactivity results with remained thousands of metabolites and intra/inter action mechanisms (isotropic, anisotropic, mediatoric, nutrigenomic, nutrigenetic, zymogenic, steric, helper balancing, cross linking former "CLF") are undergo change. One of the most debated topics in recent years are a standardized sample of a sample (leaf, root, seed) selected from natural life and how it can affect the results of research.

### 3. Pro-carcinogenic / anti-carcinogenic

Prostate and breast cancers, which are hormone-related cancers in the Far East countries (China, Japan, India), are much less common than Western countries (Europe, the United States). This is due to the fact that people living in the Far Eastern countries are mainly fed with soybean so that results of quantitation of genistein and daidzein in plasma and urine in western countries were showed that were found to be very lower than the Far Eastern countries [10].

This situation is explained as follows by the Scientists; consumption of low and high amount of soybean are pro-cancerogenic (cancer trigger) and anticancer efficient, respectively [10, 12, 13]. It is wrong to explain according to the amount (concentration) of this situation. The essential is that not the amount of a metabolite, the ratio of the metabolite balance between all the metabolites in the whole. In shortly, Europeans, Americans or Turks consume soybean at a low level this causes the low quantitation of daidzein in urine and blood, give rise to in increased risk of prostate and breast cancer. So soybean should be consumed regularly (such as Japanese, Chinese) or never consumed. Soybean to be occasionally consumed will increase the risk of developing breast and prostate cancer because it has a pro-cancerogenic effect due to low levels of genistein and daidzein.

How to explain this situation? Scientists carrying out clinical trials on mice are feeding the relevant rats with "food supplements" obtained from the soybean. As I have explained above, the content of "food supplements" that mice were feed on can change or lose their ability to function well in metabolism, since several selected biochemicals (such as genistein, daidzein) and the total natural balance of food were impaired. It is not right to compare "food fortification" obtained from natural soybean with soybeans. The people of the Far Eastern countries are fed directly with the soybean, not with food supplements made from the soybeans. The fundamental mistake that scientists make is to the genistein molecule is isolated alone from soybean and it's the physical, chemical and biochemical properties are examined in outside the natural environment. However, genistein indicates very different chemical, physical and biochemical properties and behaviors in the natural environment when 7,000 different metabolites are in the soybean. For example, genistein has the Cross Linking Former (CLF) feature in its natural environment. It does not show this feature (CLF) when it is alone. This property is also not possible to observed or determined as an analytical when it was examined alone. Many physical and chemical properties of any bioactive agent is not possible to calculate and measure in isolated form. For example, "thujone" in the content of *Salvia officinalis* is the most important active substance that triggers cancer. In this case, is it harmful to drink tea that was prepared from *Salvia officinalis*? Thujone shows carcinogenicity effect as isolated form. In the medium containing more

than 6,000 metabolites, the behavior of physical and chemical properties of thujone is completely different from than the isolated form. When *Salvia officinalis* is taken as a tea, thujone shows an antiviral and antibacterial properties and it is not carcinogenic.

Each molecule or microorganism (virus, bacteria) exhibits behavior (chemical, physical, biochemical) according to the medium in which it is present. The behavior of a molecule or microorganism in its natural environment constitutes the most important parameter that is the proportion (balance) of that molecule or microorganism. When the balance is intervened, proportion will damage rather than benefit because of the proportion will deteriorate. For example, *Clostridium spp.* is found in the intestinal flora and it should not exceed 10<sup>5</sup> CFU/g proportion in the intestinal ecology. *Bifidobacterium* and *Lactobacillus* play an important role in preserving this proportion (balance, libra). An excessive increase in clostridiums causes pseudomembranous colitis and polyp.

It should not be forgotten that in countries that alter natural nutrition cultures, an increase in diseases and especially cancer. Each country or region has its own nutrition culture. In the Scandinavian countries, there is scarcely any complaints of thyroid-related complaints. The reason for this, they bake always their bread, cheeses, various dishes and even salted cookies with the *Anethum graveolens*. *Anethum graveolens* is a spice that exists in the nutrition cultures of Scandinavian countries. France and Hungary are among the least encounter countries in terms of polycystic ovary syndrome and myoma. The reason for this, the French often consume the onion soup that is national dish. The Hungarian national meal is named goulash, it is made with plenty of onions and consumed frequently.

#### 4. Mice experiments

Experimentation with mice in cancer research increases the likelihood of being misleading on research results. The most important reason for this is that mice produce their own ascorbic acid (vitamin C) themselves. Vitamin C is a metabolite not a vitamin for mice. But human have to buy vitamin C from outside with consumed food.

Mice have a metabolism that the vitamin C always on-line monitoring (controlled) according to their needs. For this reason, they respond to against free radicals or carcinogenic metabolites much more quickly and strongly respond than the human. Since there is no such monitoring metabolism in the human body, vitamin C levels are important in the fighting against the free radical or carcinogenic metabolites.

## 5. The beginning of food is the seed

Energy control is done on crude oil while food control is done on seed. The seeds of Anatolia were started to change with hybrid seeds as from the 80s. Almost all of the seeds changed with hybrid seeds that did not fit into natural selection from vegetable to fruit, from cereals to spices. The products of these seeds that are replicated on outside of natural selection are deficient and insufficient in terms of the mineral, vitamin, secondary metabolites, lipid, carbohydrate and protein. It does not conform to the principle of biological conservation. This incompatibility cause to use of seed only one-time. The product (e.g. tomato) is obtained from the hybrid seed is incomplete in terms of content and cannot be suitable to reproduce. When hybrid seed using for to reproduce, it is inefficient.

The consumption of products of hybrid seeds which containing missing or inadequate levels in terms of secondary metabolites, vitamins and minerals and the prepared of "food supplements" from this seed also bring with very different problems.

## 6. Conclusion

The applications and products of technology and technology are frequently use by today's people and it shows that parallel increase with the diseases. Almost everything for example from food to water, from air to using car, from bed to shoes, from carpet to cosmetic products, and from seed to fertilizer is exposed to technological processes. Different processes applied with technology, thousands of different chemical additives, microbiological and biotechnological applications transform a natural product into malady. Human beings who are aware of this are looking for natural, organic or ecologically sourced products in "organic food" sections of markets. The consumption and use of food supplements are rapidly diminishing all over the world. A famous company in all over the world with "food supplements" has closed all stores in Turkey. It continues to close its stores in many European countries.

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