11. NATURAL PRODUCTS AND CONSUMER'S BEHAVIOUR

11.1 Interest in natural products and alternative medicines

In accordance to the last trends of life style, people are returning to the nature looking for natural food sources, aiming to increase their immunity by healthy diet and to prevent diseases avoiding sedentary lifestyle. Herbal remedies and traditional medicines (Chinese, Ayurvedic, homeopathic, etc) win increasingly more followers.

From food science perspective, it is difficult to define a food product that is „natural”. The notion of "natural”, which could be read on food labels have different meanings, such as: products which do not contain additives, artificial colours and flavours or synthetic substances; products which are derived from plants or animals GMO-free; products which have used just organic or traditional crops as ingredients, etc.

The FDA has considered the term „natural” to mean that nothing artificial or synthetic (including all colour additives regardless of source) has been included in, or has been added to a food. However, this concept do not address to raw material (cultivation technologies, use of pesticides) nor to ood processing or manufacturing methods, such as thermal technologies, pasteurization, or irradiation. FDA also did not consider whether the term „natural” should describe any nutritional or other health benefit. (18)

The past decade showed the public interest in alternative medicines and natural therapy including diet, food supplements and herbals both in developing and developed countries. It was noticed a change towards nutrition and health: individuals are taking charge and control of their health and they may perceive plant products to be more natural and superior as compared to the manufactured medicines.

Many manufacturers have noticed this trend in recent years and have responded by investing in research and production of various foods with higher nutritional quality. Today someone can choose from thousands of products based on botanicals and plant extracts that have both preventive and curative effects.

Thus functional foods and dietary supplements sales have registered spectacular growth during last years, while the use of phytonutrients or nutraceuticals continued to expand rapidly (10) due to the

movement toward self-medication and the huge number of people who take herbals or non-prescription vitamins and minerals (13).
The belief that herbal therapy promote healthier living and the new look of herbal medicines as a balanced and moderate approach to healing people are some of the reasons for the diversity and many more new natural products introduced into the markets all over the world.
The fast development of the food supplement markets was also positively correlated with the higher education level of consumers. People show interest in selecting and choosing the category of products which are the most suitable for their health problems, looking for the efficacy and effectiveness of alternative medicines, especially in the treatment of certain diseases where conventional therapy has proven to be ineffective or inadequate. Herbal products have the image of being able to create appropriate conditions to the body's natural capacity for self-repair (15).
Most of the consumers believe in the improvement of quality, efficacy and safety of traditional herbal medicines as result of the development of science and technology. People are familiar to the main plant species and their bioactive chemical compounds, physiological effects and health benefits.
Patients' freedom of choice in utilization of alternative treatments as well as the easy access to the herbal remedies is also responsible for the fast growing markets: natural products are available not only in drug stores or herbalist shops, but also in food stores and supermarkets; they could be bought on internet or via direct sales. According to Cohen and Adams (2011), 74% of adults utilize the Internet; 61% have searched for health or medical information on line; 49% have reviewed a website for information about a particular medical issue. A simple search for the term "weight loss supplements", for example, produced 21,800,000 hits (Google, August 2016). (7)
In addition, marketing strategies of herbals manufacturers and their sale representatives projected these products into greater limelight, while television and radio programmes increased consumers' awareness and given to herbal products respectability and credibility. Advertising was successful in attracting different age group of people (15). Thus children were encouraged to use herbals for their healthy growth and development, young persons to supply their diet for helping to cope with daily stress and slow the onset aging, elder to get rejuvenating effects, women for slimming and beauty effects and men for sexual life improvement and enhancing virility.

11.2 Factors affecting consumer's behaviour

A definition developed by marketers which is frequently used in the studies on consumer behavior, is the following: "Consumer behavior can be defined as the totality of acts decision taken at individual or group which is directly linked to obtaining and/or using of goods and services in order to meet current and future needs. Consumer behaviour include decision-making processes that precede and determine these acts."(1)

Consumers are the only ones which determine a firm's sales and profit through their purchasing decisions, so their motivations and actions actually determine the viability of a company.

The study of consumers' behaviour helps firms and organizations to improve their marketing strategies by understanding issues such as:

- The psychology of how consumers think, feel, reason, and select between different alternatives (e.g., brands, products, and retailers);
- The psychology of how the consumer is influenced by his or her environment (e.g., culture, family, signs, media);
- The behaviour of consumers while shopping or making other marketing decisions;
- Limitations in consumer knowledge or information processing abilities influence decisions and marketing outcome;
- How consumer motivation and decision strategies differ between products that differ in their level of importance or interest that they entail for the consumer;
- How marketers can adapt and improve their marketing campaigns and marketing strategies to more effectively reach the consumer (19).

It is critical to understand consumers' behaviour and to know how a potential customer will respond to a new product or service.

Some general characteristics of consumer's behaviour are:

1. Regardless of sex, occupation, education level, occupation, social class, etc., consumers are different: they have different needs and specific interests;
2. Consumer's behaviour is variable; ideas and approaches of people are constantly adapted and these changes influence, at their turn, the consumer's behaviour;
3. Consumer's behaviour involves exchanges between people, and mutually satisfying these needs and interests. For example, a consumer who wants to buy a supplement for improving sleep and the calling seller could offer it, this is a transaction that satisfies both sides. On one side, the consumer is satisfied by product purchase, while the seller is satisfied with the money received from selling that product;
4. The expectancy to satisfy their own best interests and general needs at the same time, stimulate both consumer behaviour, but also the producers. (14)

To fully understand how consumers’ behaviour affects marketing (20), it's vital to understand all the factors that affect consumers’ behaviour such as:

- **Cultural factors** are important motivation for a person’s behaviour that could significantly vary from a country to another, as well as between different groups or regions of the same country. Buyer culture or subculture have to be very carefully analyzed by the marketers, because each culture contains different subcultures (religions, nationalities, racial groups) that can be used by segmenting the market and designing the products according to the needs of each particular group. As social class is not only determined by income but also by education, occupation, wealth, the buying behaviour of people in a given class is similar, so the marketing activities have to be tailored according to this specificity;
- **Social factors** have impact on the buying behaviour of consumers, because the reference groups, family, their role and status in the society have a real potential in forming a person attitude. These include opinion leaders, but also the family role as husband, wife, or children that could be speculated in target products advertisement. It should be noticed that buying roles changes as soon as in consumer lifestyle appears changes: belonging to a club or an organization, being a finance manager or a simply worker, the consolidated or new social position clearly influence the buying decisions and the kind of products that are used.
- **Personal factors** can also affect the consumers’ behaviour. Some of the important personal factors that influence the buying behaviour are: lifestyle, economic situation, occupation, age, personality and self concept. Especially life-cycle induce consumers change, because the passage of time, the age at one moment as well as different stages (young single, married, old couple) are continuous influencing the purchase of goods and services. In the mean time, the occupation and the position in the organisation are reasons for somebody to choose a category of goods or those services which are the most appropriate to its economic situation and the income levels. Living in a certain society means to be expressed by the things in your surroundings and the general pattern of your lifestyle, to act and interact in the world determined by current interest, opinions and activities in which you are involved. Personality is the totality of behaviour in different circumstances and to know it (dominant, aggressive, self-confident) seems to be very useful to determine the particular product or service to be offered by the market.
- **Psychological factors** could significantly influence the consumer’s buying behaviour by perception, motivation, learning, beliefs and attitudes. Physiological needs, social needs or biological needs of a person become motives (more or less pressing) to seek direct or indirect

satisfaction by buying goods and services. This is strictly correlated to the perception - selecting, organizing and interpreting information in a way to produce a meaningful experience that will support the customer specific beliefs and attitude towards various products. In this direction marketers are able to induce changes by launching campaigns (20).

11.3 Consumers' reasons for using food supplements

Numerous surveys conducted by different authorities involved in public heath, dieticians, pharmacists or consumers associations analysed the reasons for using dietary supplements and reported the prevalence of food supplement use.

In USA the series of reports of NHANES (National Health and Nutrition Examination) and CRN (Council for Responsible Nutrition) showed that the prevalence of supplements use has significantly increased over the past 40 years, from 23% in early 1970s, to 42% (1988-1994) and 50% (in 2000) and remained around this level through 2010 (8). The number of "regular users" (who takes weekly a food supplement) registered in the period 2007-2011 was between 48-53%, but including the "seasonal users", the overall prevalence use was 64-69%, which means that two-third of the adult population of USA consumed dietary supplements. Due to the improved economic conditions and rising household wealth, consumers are willing to spend on vitamins and dietary supplements in addition to their regular foods to maintain their health.

The most preferred products are vitamins and minerals, but the Americans use also omega-3 fatty acids, other bioactive such lutein or some food components such as fibres (2).

Vitamins and dietary supplements market is very competitive and comprises a diverse range of products. That's why a various types of companies (from large pharmaceutical companies to packaged foods and beverage) are present on American market. Manufacturers are continuously extending their brand portfolios across different categories, hoping to develop new formulations and delivery formats that cater to consumers' specific needs and preferences.

This appetite of American consumers for vitamins and dietary supplements continued to support the current value growth of 4% in 2015 (reaching US $27.2 billion) and is expected to see a sustained growth between 2015 and 2020 (21).

The European market of food supplements is extremely diverse and dynamic. Taking into account the statistics, it is expected to register certain dramatic increases of different categories of products per geographic regions (22)

In 2013, a rise of 6.2% was recorded in the sales of food supplements in Europe. The food supplements market in Western and Eastern Europe are estimated to grow even further, at 28% from 2013 to 2018, reaching € 9 billion (9). Of these, Western Europe represents the largest market, while East European markets record the fastest growth.

Strong growth in European food supplements markets offers also good opportunities for developing country suppliers of natural ingredients. Middle-aged and elderly consumers invest in vitamins and dietary supplements to support their immunity system, while for younger consumers, natural ingredients may become a more attractive proposition as they are driving the increasing consumer demand for healthier and more natural ingredients.

The table below gives an overview of the main EU markets and their characteristics.

Table 1. Main EU markets of health ingredients and their characteristics (23)

Country	**Production**	**Processing**	**Trade**	**Herbal medicinal products market**	**Food supplement market**
Germany	Large EU producer of MAPs	Largest extraction industry	Largest importer, highest share imports from developing countries	Largest market EU, also interest in aromatherapy	Large market
Italy	Large EU producer of MAPs	Strong extraction industry	Main importer MAPs/extracts	Medium market	Largest market EU: limited herbal
France	Large EU producer of MAPs (use in cosmetics)	Strong extraction industry	Main importer MAPs/extracts	Large market EU, also interest in aromatherapy	Large market
UK	Small EU producer of MAPs		Strong traders MAPs/extracts	Medium market (relatively large interest Ayurveda/TCM)	Large market; focus on multi-herb products
Eastern Europe	Large and growing producers, strong in wild-	Strong extraction industry (Poland) for	Latvia and Poland are regional trader, between Eastern and Western Europe (e.g.	Growing markets (Poland, Romania, Slovakia, incl. in terms of exports to	Growing markets (incl. in terms of exports to

	collection, sourcing from Ukraine, Russia, Poland	Western Europe, e.g. Germany	Germany)	and from Russia, Ukraine)	Russia)

According to Euromonitor, the whole European market for food supplements is projected to have an increase of 9.5% in the coming years, reaching an estimated € 7.9 billion in 2020. Although the three European countries (Italy, Russia and Germany) were in the top ten global markets for food supplements in 2014, the most spectacular developments will come from the national markets in Eastern Europe. (9)

Eastern Europe, in general, has registered a huge increase in sales of dietary supplements in recent years. As compared to Western Europe, the market in this region has registered an increase of 60% between 2010 and 2015, and this growth will continue in coming five years, touching in 2020 a level by 18.9% higher sales than today. For comparison, in Western Europe the market has grown just over 11.3% between 2010 and 2015, while in 2020 is expected to increase just about 6.3% .

Eastern European countries will be champions of supplements increase sales by 2020, according to data from Euromonitor. Romania, Turkey, Bosnia-Herzegovina, Macedonia and Russia will be in the top of six countries with the fastest growing rate in the world.

Stoia and Oancea (2013) observed that a significant increasing of herbal food supplement sales was registered in Romania between 2008 (65 mil Euro) and 2010 (200 mil Euro). (16)

Many factors such as the ageing population, increasing consumer interest in health-care and wellness, new ingredients development, new product launches and the improved accessibility of products through various distribution channels will continue to support the growth of vitamins and dietary supplements use. But the market, however, will still face several issues such as negative research questioning the value of vitamins and dietary supplements and an increasing preference of consumers for functional and healthy foods over supplements.

Consumer patterns and motivation have been studied by collecting data and detailed information through interviews and questionnaires (2), which revealed that the main reasons of the American consumers to supplement their diet are: “to fill nutrient gap”, “to improve/maintain the overall health” and/or “to enhance energy levels”, “to boost the immune system” and “to prevent health problems” of bones, joints, heart. Other reasons were: “to lower cholesterol”, to solve different digestive issues (bowel and colon), weight loss, dry skin, anemia or sleeping problems, to support mental health, to improve the menopause or pregnancy period and the prostate health. Motivation for site-specific use (vision, heart, bones) increased with the age of user (24).

In connection to these motivations, there were analyzed the types of supplements consumed. Thus, the prevalence of specific products used showed that multivitamins/minerals are in the top (32% prevalence, “to improve overall health”), followed by Calcium (for “bone health”), omega-3/fish oil (“heart health, lower cholesterol”) and botanical supplements (a category of herbals, probiotics, melatonin and coenzyme Q10, which “improve overall health”). The distribution of vitamins has in the top vitamin C (“boost immune system, prevent colds”), vitamin D (bone health) and vitamin E (to improve overall health). Other ingredients, such as fibers were used for “bowel/colon health”, Potassium for “muscle related issues”, Iron for “anemia”, vitamin A for “eye health” and joint supplements for “healthy joint, prevent arthritis”.

Consumer studies have also shown this trend in Romania, where this "niche business" is increasing. The top ten best-sold dietary supplements reached in 2009 a total value of about ten million euros. Among them there was “Baby Drink” (a product for babies, obtained by a mix of plants to avoid colic), which total sales reached 600,000 units (800,000 euros). Other categories of huge interest were the probiotics and the digestion products, respectively. Thus “Liv 52” was among the most sold herbal food supplement. The explanation would be that many consumers have liver problems due to the excess of food they eat, and Liv 52 is drain bile while the probiotics restore the bacterial flora in the gut. For another top product ‘Arthrostop” (a supplement for joints), the Romanian buyers have paid a total of EUR 2.6 million in 2009. A growing interest also exists for food supplements based on ascorbic acid (vitamin C), vitamin D3 and calcium-complex multivitamin, agreed by the consumers that claim stress and overwork, which need energy recovery and rapid revival. The conclusion of the study conducted by Romanian Association of Pharmacists was that all ten best sold products had low prices, being actually among the cheapest food supplements from the market.

Another study that focused on the popularity of food supplements (6) among American soldiers showed that two-third (67%) of the participants responded that they were confident or extremely/very confident in the efficacy of supplements. Those persons who reported excellent physical shape as well as healthy dietary habits were much more likely to be very/extreme confident in supplements efficacy, while the non-users (55%) had no confidence in safety of supplements.

The results showed that the widespread use of dietary supplements was based on the general perception that these products are safe, effective and able to offer meaningful benefits. Actually many people may be taking especially vitamins and minerals as an insurance policy.

Most surprising was that the scientific evidence may not matter at all in decision-making around supplements' users: over 75% of supplement decisions are being made without (or despite) the recommendation of a health professional, even that the usage of dietary supplements is highest among those people older in age, better educated and reporting good health (24).

As a general rule, people who use dietary supplements pay attention to their diets and make an effort to improve dietary intake. Sebastian et al (2007) assumed in the case of people over 50 years that perceived importance of consuming a healthy diet; this is a 'significant predictor of supplement use". (17)

In a multiethnic cohort study, Foote et al (2003) also observed those persons who consumed diets higher in fiber, lower in fat and rich in fruits were the dietary supplement users, fact that suggested a "healthier conscious attitude predominates among dietary supplements users".(11)

11.4 Food supplement users' characteristics and health habits

Many surveys confirm that dietary supplement use is more prevalent in older age groups than in younger adults and in each age group usage is higher in women than in men (3). Diet and health studies suggested that women may be more health conscious than men, but the increased usage of dietary supplements could be partially attributed to the need for calcium and vitamin D for the purpose of maintaining bone health and preventing the onset of osteoporosis during aging (8). Supplement use in men increase from 36 to 66% in connection to the age increasing while the prevalence of use in women increases from 43% to 75%. In the same age group, usage of dietary supplements is 7-14% higher in women than in men. (11)

The prevalence of supplement use is also influenced by race and ethnicity. Bailey et al. (2011) found it to be highest in non-Hispanic whites (60%) as compared to Blacks (36%) or Hispanics (34%). (3)

Regarding the number of supplements taken, most of the users have as option one product (47%), but there are users who take two (23%), three (17%), four and even more (17%).

Analyzing the frequency and duration of supplement use resulted in the conclusion that typically the chosen products are taken every day and this is the regime for years. The research study developed by National Marketing Institute in 2014, showed that in USA:

− “the current supplement user” consumes an average of 3.3 pills per day;

− “vitamin/mineral supplement user” consumes an average of 4.0 pills per day;

− the average “herbal” supplement user downs 5.5 pills per day.(25)

Thus, supplement use does not appear to be a passing fancy, but more of a planned strategy that is often maintained over the long haul (8). Long term use of vitamin A, vitamin C, vitamin E, calcium and Iron was also substantial.

Higher education was associated with supplement use; 61% of those with more than a high school education used food supplements as compared to 37% of those with less than a high school education (3).

As to the life habits adopted by the people, it was noticed that supplements users are making efforts to maintain a normal body weight (to avoid obesity), they practice regular physical exercises (moderate or vigorous activities) and avoid smoking.

Block et al. (1988) observed that drinking wine (one time per week) was associated with a higher prevalence of dietary supplements use and this was speculated to be related to somewhat higher socioeconomic status of supplement users. (4)

While people with diseases or health complaints were no more likely to be supplement users than people without disease, the number of supplements used was higher among people with a disease (heart, arthritis, asthma) or a health complaint (chronic back pain, frequent heartburn, allergies and chronic fatigue) than among people without it. This is not suggested that people with diseases become users of dietary supplements, but they may add something extra to their current regime related to the health complaint or disease conditions.

The study of Block et al (2007) on “heavy users” (people who had used numerous food supplements for more than 20 years) showed the products used daily by most of them included multivitamin/mineral, B complex, vitamin C, carotenoids, vitamin E, Calcium with vitamin D, omega-3 fatty acids, flavonoids, lecithin, alfa-alfa, coenzyme Q10 with resveratrol, glucosamine, and herbal immune supplements.

Among women, a significant majority consumed gamma linolenic acid and probiotic supplements while among men, the majority consumed Zinc, garlic, saw palmetto, and a soy protein supplement.

The conclusion was that “After adjustment for age, gender, income, education and body mass index, greater degree of supplement use was associated with more favorable concentration of serum homocysteine, C-reactive protein, high-density lipoprotein cholesterol and triglycerides, as well as lower risk of prevalent elevated blood pressure and diabetes” (5).

11.5 Herbal food supplements consumer's profile

The popularity of herbal food supplements rises from "all natural" promotion of the products and consumers' trust in health benefits.

Studies to evaluate the Romanian consumer's behaviour and consumption pattern (how the buying decision is influenced, the purpose for which dietary supplements are used, the ability for buyer to understand the information provided on the label, confidence in the effectiveness and safety of products) have highlighted the influence of socio-demographic factors.

Thus, both in rural and in urban areas, medicinal plants are known and consumed by all family members. They are crafted mainly from spontaneous flora or plants are cultivated in their own garden (in rural area) or purchased from the specialized stores or supermarkets by those from urban areas, who are even willing to pay a higher price for organic products.

The most commonly used medicinal and aromatic plants are: chamomile, St. John's worth, peppermint, marigold, yarrow, buckthorn, basil, dill, parsley, lavender (26).

The results obtained in PLANT LIBRA project, implemented in the period 2012-2014 showed the regular consumption of medicinal plants-based food supplements by 41.8% of the Romanian respondents; the greatest interest in the use of food supplements was shown by females while the ingredients most favourites were declared *Ginkgo biloba, Panax ginseng* and *Aloe vera*. These data are somewhat surprising because denotes apparently a reorientation of consumers from the traditional botanical preparations (herbal teas, tinctures, syrups) to the new products and exotic plants (Asian or American). Regarding the perception of products based on medicinal and aromatic plants, Garcia-Alvarez et al. (2014) states that 22% of Romanian respondents use food supplements from medicinal and aromatic plants to treat minor health problems, which means that they assimilate traditional pharmaceutical products. This explains their preference for solid matrices, such as tablets and capsules as dosage forms, similar to those specific drugs. (12)

By contrary, preliminary results of a study developed at the National Institute of Research&Development for Food Bioresources - IBA Bucharest, during the period 2015-2016 revealed different preferences of young people (students 18-24 years). They take their information from different websites, considering as relevant specifications the labelling and leaflets. They buy food supplements for health maintenance, but they are also interested in boosting immunity and detoxification. As form of marketing, they prefer tea, followed by capsules, bars or candy; as botanical species, they appreciate lime (well known for relaxing properties and removal of the minor problems associated with stress) and green tea (for regulating metabolism, management of body weight, energizing effects in cases of fatigue). Interestingly, young people prefer local brands and buy predominantly from pharmacies and specialized in natural products stores, buying products whenever they need (having not a particular period of the year or a dosing schedule). Although perception of food supplements based on medicinal and aromatic plants is relatively ambiguous, young people have expressed interest in products that contain herbs combined with vitamins and minerals. (27)

A survey entitled "Food supplements-Aspects of public health" conducted in 2016 by a group of master students (pharmacists) on adults (urban and rural residence, men and women, ages 18-75 years) showed the Romanian customers' perception of dietary supplements. Besides confidence in the efficacy and safety of products (over 50% of respondents believe that food supplements are well regulated and periodically tested by the control authorities), there were identified some gaps in the existing general education of buyers. Thus it was observed the lack of knowledge about the different nutritional requirements of women as compared to men. A very few (only 3% of respondents) claimed they administer supplements to compensate the existing deficiencies in the diet.

Although 39.2% of respondents consider medicinal plant based-food supplements as necessary (which is why they buy), too few of them are able to establish the correct level of consumption and to identify the products suited to the specific needs. Most of them prefer self-medication or to receive advice from the pharmacist than to consult with a medical doctor or a nutritionist.

As the country report from Euromonitor 2015 stipulates that the demand for dietary supplements for health maintaining continued to rise in Romania in 2015, it requires further studies to establish more accurate the profile of the consumer and to define the specific needs for education in the field. Especially because beyond the beneficial effects on health, herbal food supplements should be used with precaution (there are serious safety concerns related to certain botanical species and botanical substances).

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