



ORIGINAL RESEARCH PAPER

Ayurveda

NUTRACEUTICALS AND RASAYANA AN OVERALL VIEW

KEY WORDS: Nutraceuticals, Functional foods

Dr Ajayghosh P	PG Scholar, Dept. of Rasa Shashtra & Bhaishajyakalpana, Govt. Ayurveda College, Trivandrum (KRL) India.
Dr. R Rajam	Professor & HOD, Dept. of Rasa Shashtra & Bhaishajyakalpana, Govt. Ayurveda College, Trivandrum (KRL) India.
Dr. T V Sreeni	Professor, Dept. of Rasa Shashtra & Bhaishajyakalpana, Govt. Ayurveda College, Trivandrum (KRL) India.

ABSTRACT

As health-related awareness increases in the population, people become more conscious about their future health. Nutraceuticals, functional food ingredients and dietary supplements are important for health promotion and disease risk reduction. This makes to grow public interest towards nutraceuticals and Rasayana therapy which has ultimately resulted in increased life expectancy and thus contributing to rise in elder population. Nutraceuticals refers to foods having a medicinal effect on health of human beings. Today's sedentary, stressful lifestyle, urbanization etc. are more affecting the health of human beings worldwide, resulting in increased lifestyle-related disorders. Major nutraceuticals possess multiple therapeutic effect with lacking of unwanted effects hence attract more consumer interest. The roots of the concept of nutraceuticals and functional foods can be traced to the ancient ayurvedic system of health care. Ayurvedic system advises a wide range of food preparations that can be consumed daily for improving quality of life by offering protection from external and internal stressors. The purpose of both nutraceuticals and Rasayana is same that is to achieve healthy life and prevention and treatment of disease.

INTRODUCTION

The term nutraceuticals was coined from "nutrition" and "pharmaceutical" in 1989 by Stephen Defelice, the founder and chairman of foundation for innovation in medicine, Cranford, an American organization which encourages medical health. According to Defelice, nutraceutical is any substance that is a food or a part of food that provides medical or health benefits, including the prevention and treatment of disease. Such products may range from isolated nutrients, dietary supplements and specific diets to genetically engineered designer food and herbal products.

Nutraceuticals are commodities derived from foods, but are used in the medicinal form of pills, capsules or liquids and again render demonstrated physiological benefits. This category includes nutraceuticals and herbal as well as other natural products. In some countries, however, functional foods and nutraceuticals are used interchangeably. Regardless, the main focus of such products is to improve health and reduce disease risk through prevention. Ayurveda has also stated the same principle as Swastha urjaskara Chikitsa that means the different ways by which one can achieve health by maintaining optimum tissues. Thus it can be stated that primarily Rasayana help to attain a healthy state and secondarily it can also be used for the treatment. Further, as per the statement 'Rasaynam Cha Tat Gyeyam Tat Jara Vyadhi Nashnam'. Rasayana is a unique therapeutic methodology to delay aging and to minimize the intensity of problems occurring in the degenerative phase of one's life. Prevention and management of health problems could help the elderly to improve quality of life and remain self-dependent for their daily activities to a maximum possible extent. These facts indicate that one objective of Rasayana is to achieve the best nutritional status is quite near to the concept of nutraceutical. Here is an effort to understand nutraceutical in light of Rasayana has been done.

AIMS & OBJECTIVES:

To review nutraceuticals from modern science and effort to elaborate as Rasayana therapy Ayurvedic point of view

MATERIAL AND METHODS

To fulfill the aims and objectives relevant Ayurveda and Modern literature, books of nutraceuticals, available information on the internet etc. were searched. The results on

search are described hereafter.

Nutraceuticals - Definition Acc. To Fssa Act

Food which are specially processed or formulated to satisfy particular dietary requirements which exist because of a particular physical or physiological condition or specific diseases or disorder and which are presented as such, wherein the composition of these foodstuffs must differ significantly from the composition of ordinary foods of comparable nature, if such ordinary food exist, and contain one or more of the following ingredients namely

1. Plants or botanicals or their parts in the form of powder, concentrate or extract in water
2. minerals, or vitamins or proteins or metals or their compounds or amino acids or enzymes
3. substances from animal origin
4. a dietary substance for the use by human beings to supplement the diet by increasing the total dietary intake

Definition- Stephen Defelice

Any substance as a food or its part with normal nutritional value provides health benefits including the prevention of the disease or promotion of health is called Nutraceuticals

History-

About 2500 years ago Hippocrates, conceptualized the relationship between the use of appropriate foods for health and their therapeutic benefits. Hippocrates said that "let food be your medicine". The philosophy behind is "focus on prevention". Term nutraceuticals was coined from 'nutrition' and 'pharmaceuticals' in 1989 by Stephan DeFelice. In 2006, the Indian government passed Food Safety and Standard Act to regulate the nutraceutical industry

Importance-

Nutraceuticals do not have a specific definition distinct from those of other food-derived categories, such as food supplements, herbal products, pre- and probiotics, functional foods, and fortified foods. Nutraceuticals are mostly referred to as pharma-foods, a powerful toolbox to be used beyond the diet but before the drugs. It seem to reside in the grey area between pharmaceuticals and food. It ranges from isolated nutrients, dietary supplements, genetically engineered designer foods, herbal products. Another reason for the growing trend of nutraceuticals is Renewable source,

Cultivation and processing, environmental friendliness

Classification Of Nutraceuticals

Nutraceutical is a broad term. There are different types of products that fall under the category of nutraceuticals

- Functional foods
- Medicinal foods
- Dietary supplements
- Pharmaceuticals

Functional Food - Definition

Nutrient consumed as part of a normal diet but delivering one or more active ingredients (that have physiological effects and may enhance health) within the food matrix. (Food and Drug Administration, FDA, Dietary Supplement Health and Education Act of 1994 DSHEA)

Acc. to European Union-

“Food products to be taken as part of the usual diet in order to have beneficial effects that go beyond basic nutritional function”-

Importance -

Concept introduced by Japan in 1991 .Legally defined as Foods for Specified Health Use (FOSHU).It constitutes fortified food from added nutrients or ingredients. Example; milk enriched with Vitamin, Orange juice fortified with calcium cereals flour added with fiber and folic acid.

Medicinal Food - Definition

Complete nutritional food with a formulation of nutrients standards, which may constitute the sole source nutrition for the person to whom it is addressed Or Complete nutritional food with a formulation of nutrient adapted to a specific disease, disorder or medical condition, which may constitute the only source of nutrition for the person to whom it is addressed. Or nutritionally incomplete food with a formulation standard nutrients or adapted for a specific disease, disorder or medical condition, which it is not suitable to be used as the only source of nutrition. (EU.Directive 1999/21/ EC)

Importance-

Intended for the specific dietary management of a specific disease .Also in conditions for which distinctive nutritional requirements, on the basis of recognized scientific principle, established by the medical evaluation. Formulation to be consumed or administered internally under the supervision of a physician Example; Supplement for a patient with inborn errors in amino acid metabolism, pancreatic exocrine sufficiency.

Dietary Supplement

Products intended to supplement the diet that bears or contains one or more of the following dietary ingredients: a vitamin, a mineral, an herb or other botanical, an amino acid, a dietary substance for use by man to supplement the diet by increasing the total daily intake, or a concentrate, metabolite, constituent, extract, or combinations of these ingredients. (Dietary supplement, health and education act 1994(DSHEA)

Importance-

Intended to add further nutritional value to the diet. These are concentrated in liquid, capsule, pills and tablet form. Not intended to treat or cure disease. Dietary Supplements should contain any vitamin, mineral, herb or other botanical (excluding tobacco), an amino acid ,a concentrate, metabolite, constituent, extract, or combination of any of the above. It must be intended for ingestion in pill, capsule, tablet, powder or liquid form. Not be represented for use as a conventional food or as the sole item of a meal or diet be labeled as a "dietary supplement". The manufacturer of a dietary supplement is responsible for ensuring that the dietary supplement is safe before it is marketed. In US a

dietary supplement is defined as a product that is intended to supplement the diet. Example; Hormones like melatonin

Farmaceuticals / Recombinant Nutraceuticals:

Farmaceuticals is made of two words Farm and Pharmaceuticals. The term Farmaceuticals is more frequently associated in agricultural circles, with medical application of genetically engineered crops. Energy providing foods such as bread, alcohol, fermented starch, yoghurt, cheese, vinegar and others are produced with the help of biotechnology

Ayurvedic View

The goal of Ayurveda is to achieve healthy life by its preventive and curable measures. Ayurveda is the life science which had insisted more on prevention of diseases and maintenance of health rather than treating any disease. Classical texts like Charaka samhitha, Susrutha samhitha and Ashtanga hrdaya has classified the whole dravyas into two categories i.e. Aushadha and Ahara. People have been taking herbs and herbal formulations as part of their food supplements since ancient times. Nutraceutical term is quite new for modern world but its roots and concept are already available in Ayurveda. There are much more considerations about diet are described in Ayurveda.

According to Acharya Charaka

a diet which besides providing the basic nutrition to the body, it help to maintain the healthy state of the body prevents the occurrence of diseases

According to Acharya Lolimbaraja

Regarding the importance of food is if wholesome diet is given in a planned way, then there is no need to administer medicines and if wholesome diet is not being used then too there is no need to give medicine as this is not going to cure the disease in the absence of wholesome diet

पथ्ये सति गदार्थस्य किमौषधि निषेवर्गैः

पथ्ये असति गदार्थस्य किमौषधि निषेवर्गैः

Acc to kasyapa

न च आहार समम् किञ्चित् भेषज्यमुपलभ्यते

शक्यते अपि अन्नमात्रेण नरः कर्तुं निरामयः

भेषजेनोपपन्नोपि निराहारो न शक्यते

तस्मात् भिषग्भिराहारो महाभेषज्यमुच्यते

One is capable of disease free only with cereals. One is not able (sustain life) without diet even of endowed with medicine, Diet is said to be great medicament

Classifications

Categorization of all food items

Acharya Charak 12 classes,

Acharya Sushrut 10 and 13

Based on consistency of food products as

1 Asita- (Semi-solids, advised for aged people)

2 Khadita- (solid food advisable for young people with good digestion)

3 Peeta- (liquid in consistency, advisable for the new borns, children and diseased people)

4 Leeda- (Paste form that can be licked, advisable for children, convalescing and old people)

Ayurveda has a great emphasis on the quality of nutritious food as

Rasayana- Reverting degenerative changes

Balya- Post illness nutrition

Brihan- Provides deficient nutrient

Jeevaniya- Maintaining longevity

Vyadhikshmatva- Enhancing the immunity

Vajikarana- Maintaining vitality and vigor

Rasayana: Nutraceuticals In Ayurveda

Quite similar to nutraceuticals which are known to have a physiological benefit or provide protection against chronic

disease, Rasayana therapy is also known for the different ways by which Uttam Dhatu can be attained by providing appropriate nourishment. Rasayana is a novel concept in Ayurveda which is more than nutraceuticals. The word Rasayana is composed of two words Rasa and Ayana. Rasa means Rasa Dhatu (nutritional plasma) and Ayana means pathway (microcirculatory channels in the body). Rasayana acts as micronutrient which nourishes our body and improves the immunity of the body and keeps us healthy. The concept of 'Ajasrik Rasayana' (general rejuvenation) deals with food products that can be consumed daily for improving quality of life by offering protection from external and internal stressors.

Importance of rasayana

Form of rejuvenate recipes, dietary regimen and special health recipes, Promoting conduct and behavior, Rasayana is the way to attaining longevity, memory, intelligence, Freedom from disorder, youthfulness, Excellence of lusters, complexion and voice, Optimum level of physical strength and sense organs.

An indication of Pathya-apathya, Hita-ahita and Satmya-asatmya are based on individualistic approach. Rasayana drugs act on work at Dhatu level which reflects its sub-cellular activity. It can be collectively compared with antioxidant, regenerative, immune-modulatory, adaptogenic

As per scope of use:

- 1 Kamyasayana
 - 2 Naimittika
 - 3 Ajastrika
1. Kamyasayana: It is used to fulfill the desire for some specific condition. e.g., prana(vitality), Ayu (longevity), Smriti (memory), medha (intellect).
 - (a) Prana kamyasayana: Rasayan therapy aiming to fulfill desires of vitality and longevity of life e.g. Triphala Rasayana, Haritaki Rasayan. Chyavanprash Rasayana, Brahm Rasayana.
 - (b) Medhakamyasayana: Promoter of intellect E.g. Brahmi, Shankhpushpi, mandookparni, Guduchi, Yashtimadhu, Ashwagandha, Vacha, Jyotishmati.
 - (c) Shreekamyasayana: promoter of complexion and luster, fortune. eg: Amalaki Rasayan
 2. Naimittika: It hastens the recovery from prevailing diseases and promotes the vitality in specific diseases. E.g. Dhatri Rasayana, Mandookaparni, Rasayana, Brahmi Rasayana, and Triphala Rasayana.
 3. Ajastrika: Regular use of nutritious foods for the endorsement of health E.g. Ksheera-Ghritaabhyas

As per method of use:

1. Vatatapika: Therapy in outdoor (OPD) basis.
2. Kuti-praveshi: Therapy in indoor (IPD) basis.

As per content of Rasayana:

1. Ausadha Rasayana: Drug therapy
2. Ahara Rasayana: Dietary therapy
3. Achara Rasayana: Code of conduct and daily habits.

Some age specific rasayanans

DECADES OF LIFE	NATURAL BIO-LOSSES	SUGGESTED RASAYANAS
0-10	Balya (corpulence)	Ksheera, ghrita, Gambhari
11-20	Vridhhi (growth)	Bala, Amalaki
21-30	Chhavi (lustre)	Amalaki, Haridra
31-40	Medha (intellect)	Brahmi, Sankhpushpi
41-50	Twak (skin quality)	Bhringaraja, Haridra
51-60	Drishti (vision)	Thriphala, Jyotishmathi

61-70	Sukra (virility)	Aswagandha, Kapikachu
71-80	Vikrama (physical strength)	Amalaki, Bala
81-90	Buddhi (thinking)	Brahmi, Sankhpushpi
91-100	Karmendriyapadav	Bala, Sahachara

Pathya Kalpana; Functional Food Dietetic Preparations In Ayurveda

1. MANDA - Main ingredient is rice
2. YAVAGU - Main ingredient is rice
3. YUSHA - Main ingredient is pulse
4. MAMSARASA - Main ingredients mamsa
5. TAKRAKALPANA - Main ingredient is curd and water

Ayurveda also prescribed various food-based medicines like Medicated milk, Ghrita, Kharjuradi Tarpan, Kharjuradi Manth, Lajadi Tarpan, Aushadh Sidha Jal

DISCUSSION

Among other approaches to prevent diseases, nutraceutical also plays an integral role. Preventing or retarding the onset of diseases has become a more attractive and cost effective strategy in the medical arena. Nutraceutical can be classified on the basis of the mechanism of action irrespective of source, based on proven physiological properties among the classes could be antioxidant, antibacterial, antihypertensive, anti-cholesterolemia, osteoprotective etc. Here ayurveda provides holistic and better drug delivery system for dietary supplements and nutrients, which is proven individualistic protocol since long time. Here we can apply the nutraceutical potential of Ayurveda as preventive, palliative and health promote measure.

In Ayurveda basically there are two types of formulations ie Primary formulations and Secondary formulations. Ashtaguna manda is a Pathya kalpana coming under the secondary formulations. In this preparation the ingredients are simply cooked in 14 times water, decanted and the liquid portion known as the manda is collected. The Rasapanchaka of the ingredients clearly indicates that all the drugs are having dipana property in general. It improves strength particularly after the panchakarma therapy where electrolyte imbalance happens. Rakta vardhana doesn't make dravya level increase but the guna level increase in blood. The qualitative analysis of Ashtaguna manda proves the presence of nutrients like Carbohydrate, Starch, Protein and Sugar.

Agni is responsible to change the Panch-abhautika composition of any Dravya. By the Paka or Pachana process which changes the whole composition. Therefore all the principle food articles described in Brihatrayi are Saagni Ahara Kalpana. This can be better applied in the context of samsarjanakrama. Since, these krama is done to stimulate Agni and nourish body; the same can be used in diseases where Agni mandata is observed. So nutrition in Ayurveda is strictly based on the absorption assimilation and other host factors. Ayurvedic aspect of nutrition is very comprehensive as well as holistic which are beyond the level of conventional nutritional practices. In samsarjana karma, Ayurveda give importance to calorie intake as well as nutrient supplementation

CONCLUSION

Nutraceuticals are natural bioactive materials that provide demonstrated physiological benefits or reduce the risk of chronic disease, above and beyond their basic nutrition function various micronutrients are extracted from the different plant or animal sources and supplemented along with food to increase the nutritive value of food. The consumption of nutrient helps to maintain optimal health and also offer disease prevention. The association of nutraceuticals with traditional medicine is bound to bring the long-lasting consumer acceptance when supported by current modern medical research. There are also need for

further research and development of these preparations for nutritional supplements .Herbal nutraceutical is used as a powerful instrument in maintaining health and to act against nutritionally induced acute and chronic diseases. The probable mode of action of Rasayana is the direct enrichment of the nutritional quality of Rasa Dhatu, promotes digestion, metabolism and nutrition through improving Agni and promotes the competence of Srotas .In classics, Rasayana has been indicated not only for maintenance of health but also for the treatment of the disease.Rasayana therapy is used to achieve the physical, mental and social wellbeing. Many Ayurvedic formulations have tremendous nutritional benefits.

REFERENCES

1. Stephen, De Felice L, (1995). The nutraceutical revolution, its impact on food industry. *Trends in Food Sci. and Tech.*, 6: 59–61.
2. Brower, B. (1998). Nutraceuticals: Poised for a healthy slice of the market. *Nat. Biotechnology*, 16: 728–33.
3. Mannion, M. (1998). Nutraceutical revolution continues at foundation for innovation in medicine conference. *AM. J. Net. Med.*, 5: 30–3.
4. Rishi, R.K. (2006). Nutraceutical: Broadline between food and drug. *Pharma Review*, Available from: <http://www.kppub.com/articals/herbal-safety-pharma-review-004/nutraceutical-broadline-between-food-and-drugs.html>. (assessed on)
5. Pandit kashi nath shastri ,dr. gorakh nath chatirvedi, charak samihita uttarardh vidyotini hindi vyakhya chikitsa sthan adhyaya 1 shlok 5 page no.5
6. Dr. Brahmanand tripathi dipika hindi commentary of Sarangdhar samhita purva khand chaturth adhyaya shlok no 13 page no 49.
7. Agnivesa, Charaka samhitha, revised by Charaka and Dridhabala, Varanasi, Krishnadas academy, 2005, Sutrasthana, chap 5, shloka 12, page 38
8. Sarangdhara ,Sarangdhara samhitha, edited by Pandit parasurama sastr, New Delhi, Chaukhamba Publications, 2013, Madhyama khanda, chap 2, shloka 170, page 169
9. Dr J.L.N. Shastry, Dravyaguna vijnana, Varanasi, Chaukhamba orientalia, reprint edition, 2012, Vol 2
10. Joshi, H. and Parle, M. (2006). Brahmi Rasayana improves learning and memory in mice. *Oxford Journals Evidence Based Complementary and Alternative Medicine*, 3: 79–85..
11. Upadhyay, Yadunandan (2003). Uttar Stana Rasayan vidhimdyayam. Astang Hridya, "Vidyotini" Hindi Commentary. Varanasi, Chaukhmbha Sanskrit Sansthan; Edition, pp. 595–607.
12. Shastri, K.N. and Chaturvedi, G.N. (1998). Chikitsa Sthana Rasayanadyay. Charak Samhita, "Vidyotini" Hindi Commentary Part-II. Varanasi, Chaukhamba Bharti Acadami; Edition Reprint, pp. 1–64.
13. Sharma, P.V. (1981). Charaka Samhita Chikitsasthana, Vol. 2, (Chaukhamba Orientalia, Varanasi, pp. 62–74.