

CONCEPT OF NUTRACEUTICALS IN AYURVEDA W.S.R TO *AAHARA KALPANAS* & *RASAYANAS*

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ABSTRACT

Nutraceuticals is a term combining with the words "nutrition" and "pharmaceutical". By these two words Nutraceuticals possess demonstrable benefits in management of chronic diseases & so they go similar with Ayurvedic Principles of *Aahara Kalpanas*, which can be explained with an example of medicated food i.e. *Moong-dal-rice (Khichadi)* cooked by adding *Trikatu* powder. It is mainly administered in fever as nutritional supplement and for increasing the digestive fire in *Agni Mandya* condition. Ayurvedic concepts of *Hita*, *Ahita*, *Satmya*, *Asatmya*, *Pathyapathya* can be correlated to the concepts of Nutraceuticals. The concept of *Aajasrika Rasayana* deals with food products that can be consumed daily for improving the quality of life & to rejuvenate the body which is again the concept of Nutraceuticals. The principle food articles described in *Brihatrayi* are *Saagni Aahara Kalpana*. This can be better applied in the context of *Samsarjana Krama*. All these principles help in Prevention, Protection & Curing of the diseases.

Keywords: Nutraceuticals, Ayurveda, *Aahara Kalpanas*, *Pathya-Apathya*, *Rasayanas*

INTRODUCTION

Nutraceuticals are food or food product that provides health and medical benefits, including the prevention and treatment of disease. The term Nutraceuticals was coined by Dr. Stephen De Felice in 1989 from two words Nutrition & Pharmaceutical.¹ The concepts of Ayurveda says *Swasthasya Swastha Rakshanam & Arogyasya Roga Prashamanam*² i.e. Prevention, Protection & curing the diseased. *Aahara Kalpanas* said in Ayurvedic classics act as nutritive & also as medicines. They can be compared to today's term Nutraceuticals. This goes similar to the words of Hippocrates "Food be the medicine &

medicine be the food".³ According to *Kashyapa*, *Aahara* is *Mahabheshaja* i.e. Best Medicine.⁴

Such products may range from isolated nutrients, dietary supplements and specific diets to genetically engineered foods, herbal products, and processed foods such as cereals, soups, and beverages.

The definition of Nutraceuticals that appears in the latest edition of the Merriam-Webster Dictionary is- A food stuff (as a fortified food or a dietary supplement) that provides health benefits. Nutraceuticals foods are not subject to the same testing and regulations as pharmaceutical drugs.⁵

Classification: mainly 3 groups:^{6,7}

1. Dietary Supplements: The "dietary ingredients" in these products may include: vitamins, minerals, herbs or other botanicals, amino acids, and substances such as enzymes, organ tissues, glandular, and metabolites. Herbs or botanical products such as concentrates and extracts like Aloe Vera, Garlic, Ginger, Bitter guard, Turmeric, Methi seeds etc. Some extracts or concentrations such as tablets, capsules, soft gels, gel caps, liquids, or powders. Gel caps, liquids, or powders.
2. Functional foods: are designed to allow consumers to eat enriched foods close to their natural state, rather than by taking dietary supplements manufacture. Eg. Rice, Dal, Roti etc.
3. Medical foods: can be ingested through the mouth or through tube feeding. Medical foods are always designed to meet certain nutritional requirements for people diagnosed with specific illnesses. Medical foods are regulated by the FDA and will be prescribed/monitored by medical supervision

Ayurveda as Nutraceuticals:

Ayurvedic principles of *Aahara Kalpanas* depend on factors like *Prakruti*, *Desha*, *Dosha*, *Sara* etc. of the individuals. Here food can be categorized into *Hitakara & Ahitakara Aahara*, *Pathyapathya*, *Sathmya-Asathmya*. Types of *Aahara & Aahara Kalpanas* mentioned in Ayurveda play very great role in emphasizing the quality of food as *Rasayanas*, *Balyas*, *Vyadhikshamatwa*, *Vajikarana*. Ayurveda has always given importance to maintenance of health.

- In Bhagavat Geeta it has been described *Satvika*, *Rajasika* and *Tamasika* food in detail explained about *Ayurvedhaka*, *Madhura*, *Balavardhaka*, *Swasthavardhaka*, *Snigdha* and *Sukhada Aahara* and *Swabhava* (quality) of food only which are palatable and pleasant, suitable for the body hence *Grahya*.⁸
- *Aahara* is *Jeevana* for all the animal kingdom. The contribution of *Aahara* is very much in maintenance of health. Among the 10 features of

maintenance of health under WHO nutrition is one among them. Nutrition is directly related to *Aahara*.

- Among the 3 *Upastambhas* (pillars) *Aahara* is the first one.

The food is classified into two types. The one which preserves the health, *Manasika* and *Shareerika Shakti*. The other which helps to cure the diseases in the diseased person. The climate plays a vital role in maintaining the health in healthy person, the food is influential by the weather, individual person has different *Prakruti* and same food cannot be compatible to all the person, it varies from person to person based on the digestive capacity mainly.

Acharya Charaka classified raw food materials into 12 groups, based on their nutritional & therapeutic properties.⁹ *Shooka Dhanya* (Corns with Bristles), *Shami Dhanya* (Pulses), *Shaka* (Vegetables), *Mamsa* (Meat), *Phala* (Fruits), *Harita* (Salads), *Ambu* (Water) *Gorasa* (Milk & Milk Products), *Ikshuvikara* (Products of Sugar Cane Juice), *Madya* (Wines), *Krutanna Varga* (Food Formulations), *Aaharayogi varga* (Accessory Food Articles).¹⁰

Concept of Rasayana as Nutraceutical:

The word *Rasayana* is composed of two words *Ras* + *Ayan* which means by which one gets the excellence of *Rasa* (the nourishing fluid which is formed immediately after the digestion). Many of the *Rasayana* drugs have Nutraceutical action. Best examples are *Ajasrika Rasayana*, which deals with food products that can be consumed daily for improving the quality of life & to rejuvenate the body. *Prayoga* of *Rasayanas* in an appropriate condition will give better result since it will work in the level of *Dhatu*. This can be explained by some examples i.e.

1. By improving the nutritional value of the *Rasa Dhatu* (*Asthayee*), in turn by improving the *Dhatu Poshana* (*Dhatuwardhak*) e.g. *Dugdha*, *Ghrita*, *Shatavari* etc.¹¹
2. By improving the *Agni Vyapara* (*Agnivardhak*) in the body, there by responsible for proper

Dhatunirmana in the body by drugs like *Chitraka*, *Bhallataka* etc.¹²

3. By *Shrota Shodhana* in the body, this improves *Dhatu Poshana Kriya* by drug like *Guggulu*.

Apart from nourishment, the individual is endowed with Psychic excellence like sharp memory, by virtue of rejuvenation therapy, which can be achieved by the *Rasayanas*. *Rasayana Chikitsa* also boosts the *Ojus* (immune system) & helps in preventing the disease occurrence.

Some examples of Nutraceuticals in *Ayurveda* are;

1. *Chyavanprashm* (for general health and prevention of respiratory disorders),
2. *Brahma Rasayana* (for protection from mental stress),
3. *Narasimha Rasayana* (vigor and vitality),
4. *Phala Ghrita* (for reproductive health),
5. *Arjuna Ksheerpaka* (for cardio protection),
6. *Rasona Ksheerpaka* (for cardio protection),
7. *Shilajathu Rasayanam* (for diabetes mellitus)¹³
8. *Brahmi / Vacha* along with honey is given to new born to pacify the increased *Kapha Dosha* & to improve the memory of the child¹⁴ – Used according to the age of individual.
9. *Ritu Haritaki-Haritaki* should be used along with *Saindhava* in *Varsha Ritu*, with *Sarkara* in *Sarat Ritu*, with *Sunti* in *Hemanta*, with *Pippali* in *Sisira*, with *Madhu* in *Vasanta* and with *Guda* in *Grishma*. Another example of use of Nutraceuticals as per season is of *Bhallataka Rasayana* which should not be consumed in summer season.¹⁵ – Used according to season wise.
10. *Triphala Rasayana- Haritaki* is consumed after digestion of food, *Vibhitaki* is consumed before food & *Amalaki* after food.¹⁶ – Used according to time of consumption.
11. *Shatavari Ghrita*¹⁷ in lactating mother which is used as Post-partum tonic for Galactagogue action. Galactagogue is a substance that is used to promote milk in the humans. The best drug is *Shatavari* (*A. racemosus*). It has been investigated by a number of researchers and they found

that its roots, and root extracts can improve lactational inadequacy in lactating mothers.

- a) Few research done on this demonstrated increase in milk secretion in animals and also in humans.
- b) After administration of alcoholic extract of *A.R.* a significant increase in milk yield has been observed along with increased growth of the mammary glands, alveolar tissues and acini.
- c) A group of researchers studied *A.racemosus* for its antidopaminergic activity with a working hypothesis, that therapeutic effects, of *Shatavari* like dyspepsia and galactagogue, may be due to an active principle containing dopamine receptor antagonistic activity because *Shatavari* produced similar effects when compared to metoclopramide, a dopamine receptor antagonist.
- d) An increase in prolactin level comparable to metoclopramide was demonstrated, but the antidopaminergic activity was not observed.
- e) The intramuscular administration of alcoholic extract of *Shatavari* root produced an increase in weight of mammary glands in postpartum estrogen primed rats and increased uterine weight in estrogen primed group.
- f) There was an increase in weights of adrenals coupled with depletion of ascorbic acid, suggesting the release of pituitary ACTH.
- g) The growth of lobulo alveolar tissue and milk secretion in the estrogen primed rats was thought to be due to the action of released corticoids or prolactin.¹⁸
12. *Chyavanaprasha & Pippali Rasayana* used on the target organ i.e. in respiratory disorders, *Triphala Churna* along with ghee improves eyesight.¹⁹

Concept of *Pathya Kalpana*:

That which helps to follow a proper *Patha* (way) is called *Pathya*. So any food that doesn't harm the body channels or health of the individual & which is wholesome for both mind & body is called as *Pathya*.²⁰ Some examples of *Pathya Kalpana* are *Manda*, *Peya*, *Vilepi*, *Yavagu*, *Yusha*, *Krusara*, *An-*

na, Takra & Dadhi Kalpanas, Mamsarasa, Khada Kambalika, Raga Shadava etc.²¹

The main objective of *Pathya Kalpana* here is to mention the importance of the diet in day to day life. Ayurveda believes in *Ama & Agni* concept in digestion process. So, improper food habits hampers the *Agni* leading to *Agnimandya & Ama* formation which in turn leads to diseased state. So *Pathya Palana* (intake of wholesome food) is very important aspect.

According to modern science food is of 3 types Carbohydrates, Fats & Proteins. But Ayurveda weighs in the concept of *Dravyataha, Gunataha & Pramanataha* of food products,²² and also depends on the individuals *Prakruti, Dosha, Agnibala*.

Agni is responsible to change the *Panchabhautika* 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 Aahara Kalpana*.²³

The concept of *Saagni Aahara Kalpana* can be 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. This is also one of the examples of Nutraceutical. Any type of medicine administered in body is dependent upon *Agni* for its metabolism. 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 *Samarjana Karma*, Ayurveda give importance to calorie intake as well as nutrient supplementation.²⁴

Table 1: Samarjana Karma Dravya²⁵

| | | |
|--------------------------|--|---------------------------|
| <i>Peya</i> | More liquid+rice in small unit | Less carbohydrates |
| <i>Vilepi</i> | More rice+less liquid | More carbohydrates |
| <i>Akrita yusha</i> | Pulse without salt and fat | Protein(vegetable source) |
| <i>Krita yusha</i> | Pulse with salt and fat | Protein with fat |
| <i>Akrita mamsa rasa</i> | Fat present in mamsa+animal protein | Protein with fat |
| <i>Krita mamsa rasa</i> | Fat+animal protein+supplement fat and salt | More protein and fat |

Modern Concept:

Scientifically there a difference between Nutraceuticals, functional foods & dietary supplements.

1. Dietary supplements are concentrated nutrients like iron, calcium & other minerals which are normally available in food and are prescribed when there is deficiency of the same i.e. when daily diet cannot meet individual needs of nutrients (micronutrients or macronutrients). Then supplementary diet or food supplements are essential. Particular nutrients can be supplemented for prevention of a non-communicable disease or for therapeutic purpose. For example;²⁶

a) Losses of vitamins in canning ranges from 25% in tomatoes to 67% in lima beans.

- b) Losses of thiamin in baking can be 100% if pH rises above 6.
 - c) Home cooking of vegetables can destroy three quarters of both thiamin and riboflavin.
 2. Functional foods are the foods which are similar to that of conventional foods but they have measurable physiological benefits, like eggs enriched with omega 3 fatty acids.
 3. Whereas Nutraceuticals are not daily supplements, they are added to the daily diet for longer duration example like Probiotics having partly nutritive value and partly pharmaceutical value.
- Note:** When a functional food aids in the prevention and/or treatment of disease(s) and/or disorder(s) (except anemia), it is called a Nutraceuticals. The proposed definition can help

form distinction between functional foods, Nutraceuticals, and dietary supplements.

CONCLUSION

By the above discussion it is proved that the Nutraceuticals is a connecting link where both the system of medicine should shake their hands with enduring hardcore research and mutual acceptance of both the systems. Though *Pathya Kalpanas* cover all the nutritive values by proving all the *Shad Rasa Yukta Ahara* which helps in maintain the *Panchabhoutika* nature of the body but still they can't always act as medicine i.e. in diseased conditions. So *Aahara Kalpanas*, *Rasayanas* together act as Nutraceuticals. With the help of modern technology both systems should be combined to give still better products for a healthy life. From the above concepts it is clear that Ayurveda and Nutraceuticals go parallel to each other. But when both work together then there would be long lasting acceptance by the society.

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