

## Concept Of Nutraceuticals And Pathya Kalpana ; A Review

<sup>1</sup>Abhijeet Kumar, Shilpa Patil<sup>2</sup>

<sup>1</sup>Ug Scholar , Faculty of Ayurveda, IMS, RGSC, BHU, Mirzapur, Uttar Pradesh, India

<sup>2</sup> Assistant professor, Department of Rasa Shastra IMS ,RGSC, BHU, Mirzapur, Uttar Pradesh, India

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### ABSTRACT

Ayurveda “science of life”, which has emphasized more momentousness on prevention of disease & maintenance of health (“Swasthasya Swasthya Rakshanam”) and rather than curing any diseases (“Atursya Vikaar Prashanam”). In Ayurveda, food is considered to affect the mental health as well as the body and in bhagavad gita, food described such as satvika, rajasika and tamasika food. The term “nutraceutical” is combination with words “nutrition and pharmaceutical”. Since from the vedic period, nutraceutical are used. It is very beneficial for the health, boost the immunity and provide demonstrated physiological benefits or reduce the risk of chronic diseases, above and beyond their basic nutritional function. The nutraceutical concept is gaining more popularity, recently and its can be traced to the ancient Indian system of the medicine, Ayurveda. Ayurvedic principles of dietetics like Hita, Ahita, Satmya, Asatmya, Pathya-Apathya can be correlated to the concepts of nutraceuticals. It has more advantages over the medicine as they avoid side effect, have been fortified naturally with dietary supplement etc. In the present scenario, it is very important that includes antioxidant, digestive stimulants, and the probiotics through Ayurveda, we can fill bridge gap of food and medicine. The classical texts of Ayurveda are filled with scattered references on the implication of food products in various diseases entities. Hence, in this review article, an attempt has been made in order to compile concept of nutraceutical and concise the implications and importance of pathya kalpana which can be easily adaptable by an individual in day to day life.

**KEY WORDS** ; Nutraceutical, Ayurveda, Nutraceutical Classification, Ahara kalpanas, Pathya-Apathya

### I. INTRODUCTION

Ayurveda , “ science of life” , which has emphasized more momentousness on prevention of disease & maintenance of health (“Swasthasya

Swasthya Rakshanam”) and rather than curing any diseases (“Atursya Vikaar Prashanam”) <sup>1</sup>. it comes from the ancient Indian system of the health care focused on aspects of man his sickness. In Ayurveda, good health means metabolically well balanced human beings, which proposal to the complete system to live a long healthy life in this term simplified means “science of longevity” through diet and nutrition <sup>2</sup>.

In 1989, Dr Stephen De felice coined the term of nutraceutical from “nutrition and pharmaceutical”. As for, those related terms are “functional food” and “dietary supplement”. In present scenario, Ayurvedic principles, dietetics, nutrition, pharmaceutical preparations can also be correlated with nutraceutical. It includes diges-tive stimulants, antioxidant, probiotics etc . Through ayurveda, we can fill the gap between food and medicines. Ahara is designated as best medicine as per Ayurveda which is similar to Hippocrates concept <sup>3</sup> ; “Let food be thy medicine and medicine be thy food”

In Ayurveda, According to Acharya kashyapa the diet (Aahara) is consider the mahabhashaja (supreme medicine) <sup>4</sup>. Medicine can't good for the patient if , who doesn't follow the pathya. Importance of aahara and pathya towards the maintenance of good health since it will keep saptadhatu and tridosha in healthy state which are the prime elements of healthy status. Ayurveda believe that voice, complexion, longevity, strength, happiness, growth (physical health) and intelligence (mental health) depend upon the types of aahara (food materials) which an individual consumed. Main objective of describing Aahara Kalpana is to highlight the role of diet in maintaining health as well as treating various ailments like ; Dosh, Dhatu, Mala, Agni in any individual and considered very importance in Ayurveda. <sup>5</sup> It plays pivotal role of Ahara, Nidra, and Brahmacharya regarding to maintenance of health and alleviating the disease.

It is important to consider the food concepts that is most favorable for the particular

constitutional type. According to Prakriti, Desha, Bala, Kala etc, when ahara is consumed properly, then it retains a sound physical as well as mental health of body. Hence, Acharya Kashyapa<sup>6</sup> has been described as Aharo hi Mahabheshaja". Acharya Sushruta has praised it as nourishing, instant health supplier, sustains body, promotes life, imparts body glow. It also helps in advancing energy level, memory level, advancing energy level, Oja, digestive power<sup>7</sup>. Acharya Vagbhatta has also pronounced similar opinion about its importance. To achieve benefits mentioned above, one should consume proper Ahara (Pathyakara Ahara). The Pathyakara Ahara is not only beneficial in healthy stage but also helpful in diseased condition for speedy recover<sup>8</sup>.

## II. MATERIALS AND METHODS

Various classical texts have been used for this study as sources materials and available commentaries on it. Apart this, through the various search engines like Google, Google scholar, other literature related to the subject, research papers, and material available on websites have been referred this and critically analyzed.

### Classification of nutraceutical

Nutraceutical is broadly classified and varied types of products that are encircled under the terms of nutraceutical<sup>9,10</sup>.

1. Dietary supplements
2. Functional foods
3. Pharmaceutical
4. Medical foods

1. **Dietary supplements**; The role of dietary supplements product that contains of dietary nutrients secured from the food products and are intended to add further nutritional value to the diet<sup>10</sup>. Botanical products or herbs such as concentrates and extracts like Aloe Vera, Garlic, Ginger, Turmeric, etc. Some concentrations or extracts such as tablets, capsules, soft gels, gel caps, liquids, or powder etc<sup>11,10</sup>. It has been overlapping of following nutraceutical products such as explain below;

- **Nutrients** ; Nutrients substances include such as vitamins, minerals, amino acids, fatty acids and antioxidants are dietary ingredients. vitamin plays pivotal role in metabolism and enzymatic interaction systems. minerals such as provide immunity, reproduction and growth. Fatty acids are important role for healthy cell membranes,

skin and hair and proper functioning of nervous system etc. the role of Antioxidant such as prevent cellular damage and aging<sup>12</sup>.

- **Herbals**: The elaborate of nutraceutical holds a great promise to prevent chronic diseases, improve health with the help of herbals. Some examples are flax seed oil and powder such as containing omega – 3 fatty acids which is analgesic, anti-inflammatory, antipyretic etc<sup>13</sup>.
- **Phytochemicals** ; It is also acts on nutraceutical and of the secondary metabolites. Pharmaceuticals such as polyphenols, isoflavonoids, anthocyanidins, phytoestrogens, terpenoids, carotenoids, limonoids, phytosterols, glucosinolates, and polysaccharides. In the form of dietary if intake of pharmaceutical such as promote health benefits, provide protection against chronic degenerative disorders such as cancers, coronary heart diseases, diabetes, high blood pressure, inflammation, microbial, viral and parasitic infections, etc. phytochemicals/phytonutrients containing the several types of food such as grains, beans, fruits, vegetables etc<sup>14</sup>. some examples are carotenoids (isoprenoids) found in the various fruits, vegetables and egg yolk to provide the boost immune system, anticarcinogenic effect etc<sup>15</sup>.
- **Probiotics** ; Probiotics are live microbial feed supplements for improving its microbial balances or effect. Conspicuous probiotics are used to treat lactose intolerance, acute diarrhoea and antibiotic-associated gastrointestinal side effects. the most important probiotics are Lactobacillus bacteria and bifidobacteria<sup>16</sup>.
- **Prebiotics** ; Prebiotics are nutraceutical which acts on the flourishing of probiotics. These are the dietary ingredients that affect the host by selectively altering the composition or metabolism of gut flora. These are short-chain fructo-oligosaccharides that have unique chemical structures that are not digested by humans. The consumption of Prebiotics which is generally promote the bacterial growth and lactobacillus in the gut which helps in the metabolism. it is pivotal role in the improving lactose tolerance, detoxification, and dyslipidaemia, relief from constipation etc. for example ; some prebiotics sources are chicory

roots, onion, garlic, banana, tomato, beans etc<sup>17</sup>.

- **Nutraceutical Enzymes** ; It is an essential part of the body which is responsible for the several biological functions. whilst , the search of nutraceutical Enzymes in diet helps to eliminate many symptoms of hyperglycemia, digestive problems , obesity etc<sup>18</sup>.
  - **Dietary fibres** ; Dietary fibres includes non-starchy polysaccharides such as cellulose, hemicelluloses, gum and pectin etc. it is the edible plants of the material that is not hydrolysed but enzymes of digestive tract but digested by the microflora of gut<sup>19</sup>.
2. **Functional food/ Fortified nutraceutical:** In 1991, the functional food concept is first ever introduced by Japan . functional food is those food in which components or ingredients have been added to give it a more specific medical or physiological benefit, other than having purely nutritional effect alone. when the aid of functional food in prevention of the disease other than anaemia is known as nutraceutical. As, from the added ingredients /nutrients constitutes fortified food. Some examples are milk enriched with Vit. D, orange juice fortified with calcium, etc<sup>20</sup>.
3. **Pharmaceuticals / Recombinant Nutraceutical** ; The pharmaceutical term is more consecutive associated in agricultural circles, with medical applications of genetically engineered crops or animals. Such as, Energy-providing foods such as bread, alcohol, fermented starch, yogurt, cheese, vinegar and others are produced with the help of biotechnology<sup>21</sup>.
4. **Medical foods** ; Medical foods are formulated to be administered /consumed internally under the supervision of a physician, that is intended for the specific dietary management of certain disease or conditions for which distinctive nutritional requirements. these foods are regulated by the FDA (food drugs administration) and can be prescribed under medical supervision<sup>22</sup>.

#### Ayurvedic approach as nutraceutical

Although, the concept of the nutraceutical is gaining more popularity, holistic approach and

recently, its roots can be traced to the ancient Indian system of medicine, Ayurveda, the 5000 year old health science which has mentioned benefits of food for therapeutic purpose<sup>23</sup>.

The principles of Ayurveda of Ahara kalpana depends on several factors like Prakriti, Desha, Dosha, Sara, kala etc. Since, the food can be categorised into Pathya- apathya, Hita – ahita, satmaya – asatmya<sup>11</sup>. Types of Ahara and Ahara kalpana mentioned in Ayurveda plays a great emphasize on the quality of the nutritious food as Rasayana ( preventing the degenerative changes caused by ageing), Balya (post illness nutrition ), Vyahikshamatwa (enhancing the immunity), Vajikarana (maintaining the vitality ) , the aim of Ayurveda has always given momentousness to the maintenance of the health<sup>24</sup>.

- For the all animal kingdom , Ahara is life .
- The contribution of the Ahara is grate role in the maintenance of the 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 pillars( Trayopasthambha) such as Aahara , Nidra , Brahmacharya . while of Ahara is the first one.
- On the basis of nutritional & therapeutic properties, Acharya Charaka has classified raw food materials into 12 groups<sup>25</sup>, 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)<sup>23</sup>.
- Food has been described in the Bhagavad Gita<sup>26</sup> such as Satvika, Rajasika and tamasika food detailed explanation below

#### (a) Satvika

“Ayuh-sattva-balarogya-sukha-priti- vivardhanah ! rasyahsnigdah sthira hrdaya aharahsattvika-priyah.” !! [17;8]

Foods dear to those in the mode of goodness increase the duration of life, purify one's existence and give strength, health, happiness and satisfaction. Such foods are juicy, fatty, wholesome, and pleasing to the heart.

#### (b) Rajasika

“Katu-amla -lavanaty-usna-tiksna -ruksha – vidahinah !

Ahara rajasasyesta dukkha- sokamaya- pradah” !! [17;9]

Foods that are too bitter, too sour, salty, hot, pungent, dry and burning are dear to those in the mode of passion. Such foods cause distress, misery and disease.

**(c) Tamasika**

“Yata-yamam gata- rasa puti paryusitam can yat ! Uchhistam api camedhyam bhojanam tamas priyam” !! [17:10]

Food prepared more than three hours before being eaten, food that is tasteless, decomposed and putrid, and food consisting of remnants and untouchable things is dear to those in the mode of darkness.

**Concepts of Pathya kalpana**

The concept of the pathya Kalpana involved that an interesting verse regarding the importance of the wholesome diet following “

“Pathye sati gadartasya kim aushadh nishevane”

“Pathye sati gadartasya kim aushadh nishevane.”

(Lolimaraja)

There is no need of medicine for the one who follow proper diet.

There is no use of medicine for the one who doesn't food itself is the best medicine.

Some examples of the Pathya Kalpana are Manda, Peya, Yavagu, vilepi, Anna, Krusara,<sup>27</sup> etc. The first five formulation such as Manda, Peya, Yavagu, Vilepi, and Anna are prepared by using two ingredients that is rice and water. Here, the quantities of rice and water varies resulting in difference in consistencies as well as properties of prepared formulations (Table 1). In Ayurvedic reference, Yavagu is described three types such as Kwatha, Kalka and mamsa sidhha Yavagu shown ingredients and properties (Table 2). The main purpose of the Pathya Kalpana here is to mention the importance of the diet in life. Ayurveda believes in Ama & Agni concepts in digestion process. So, improper food habits hampers the Agni leading to Agnimandya & Ama formation which in turn leads to diseased state. So Pathya Kalpana (intake of wholesome food) is very important aspect.

**Table 1 ; Preparatory Methods of formulation prepared from Rice (Oryza sativa Linn) and Actions**

Diet form	Quantity	Prepared formulation	Final constitution prepared formulation	Actions
<b>Manda</b> <sup>29</sup>	Rice ; 1 part Water ; 14 part	Untill all the rice particles are properly cooked.	Only supernatant liquid.	Dipana, Pachana, Vatanulomaka, Grahi, Kaphaghna etc
<b>Peya</b> <sup>30</sup>	Rice : 1 part Water ; 14 part	Untill all the rice particles are properly cooked.	Solid rice and liquid portion are taken in equal proportion	Deepana, Pachana, Vatanulomaka, Dhatupushtikara <sup>31</sup> etc
<b>Yavagu</b> <sup>32</sup>	Rice ; 1 part Water : 6 part	Untill all the rice particles are properly cooked.	Only solid rice part is taken.	Grahi, Balya, Tarpana, Vatanashana etc
<b>Vilepi</b> <sup>33</sup>	Rice ; 1 part Water ; 4 part	Untill all the rice particles are properly cooked.	Moresolid portion with little liquid is taken.	Deepana, pachana, Hradya, Vrusya, <sup>34</sup> etc
<b>Anna / odana</b> <sup>35</sup>	Rice ; 1 part water ; 5 part	Untill all the rice particles are properly cooked.	Only solid rice part is taken.	Vrihna, Tarpana, atisara etc
<b>Krusara</b> <sup>36</sup>	Rice : 1 part Mudga ; ¼ part Water ; 6 part	Untill the rice and Mudga are properly cooked.	Only solid rice and Mudga part is taken.	Balya, Kapha-Pittakara, Vatanashaka <sup>37</sup> etc

**Table 2 ; Yavagu with ingredients and its properties**

Yavagu	Ingredients	Properties
<b>Kwatha Siddha Yavagu</b> <sup>38</sup>	Haritaki, Shunthi	Vatanulomaka
<b>Kwatha Siddha Yavagu</b> <sup>39</sup>	Takra	Ghrita Ajirna
<b>Kwatha Siddha Yavagu</b> <sup>40</sup>	Amalaki, Shunthi, Khandasarkara	Asweda, Anidra
<b>Kalka siddha Yavagu</b> <sup>41</sup>	Pippali, chitraka , Shunthi	Deepana, Udarsoola
<b>Kalka siddha Yavagu</b> <sup>42</sup>	Vidanga, shigru, takra, maricha ,swarjika Kshara	Krumighna , deepana
<b>MamsarasasidhhaYavagu.</b> <sup>43</sup>	Dugdha, Apamarg bija	Bhasmaka
<b>Mamsarasa sidhha Yavagu.</b> <sup>44</sup>	Kukkuta mamsarasa	Mutrala

### III. DISCUSSION

In today era, Pathya Kalpana is basic but most momentousness concept in Ayurveda which seems to be practical and must be practiced clinically. The preparations made by Samskara various methods of processing make the diet more fruitful in terms of health. momentousness of understanding “concept of pathya Kalpana “can be seen from the following searching points such as easy availability and palatability, Cost effective, Good Nutrition value ,Different modification etc .Among other approaches to prevent diseases, as nutraceutical plays an pivotal role. Preventing and retarding the onset of diseases has become a more attractive and cost effective strategy in the medical arena<sup>45</sup>.

At every moment of concepts of pathya changes and with every individual. What is Pathya to one person may not be Pathya to another person. Even it changes in the same person depending upon various searching components such as Agepsychologicalcondition, condition of provocation Dosha, condition of Dhatus, conditions of mahasrotas , condition of raw material , Area of the patient , Habits of the patient etc. So concerning and elaborating the diet plan need a lot of attention from the physician<sup>45</sup>.

According to modern science, the nature of the food is analysed by the following three broad types such as carbohydrates , fats and protein .But the Ayurveda weighs, the properties of the food products<sup>28</sup> and also depends on the individual Dosha, Agnibala, Prakriti .This obviously changes from person to person. Even it also changes as per the agearea of stayadaptability ,habit status of mind , volume of the body, dominance of humours in the particular patient. So, modern dietetics are desirous on choosing the types of food articles based on dominance of basic constituents in the food which will complete the daily fixed quota of

calories. They choose the food articles in terms like protein diet-carbohydrate diet. On the contrary, an Ayurveda physician never stresses on specific quantity of diet to all. But he advises to vary the quantity as per the appetite of the patient (strength of digestive capability) .it generally advises to have the food which will comprise all the six taste thus balancing or maintaining Panchabhautika constitution of the body<sup>1</sup>. Also, numerous nutraceutical combinations have entered the international market through exploration of ethnopharmacological claims made by different traditional practices. To truly consume a healthy diet, the vast majority of the diet must be composed of healthpromoting foods and nutraceuticals but disease-promoting foods or junk food must be avoided. Ninety percent of the daily diet should be made up of nutrient rich plant foods, whose calories are accompanied by health-promoting phytochemicals, vegetables, fresh fruits, beans and legumes, raw nuts, seeds, and avocados, starchy vegetables and wholegrains. These foods or nutraceuticals construct a health-promoting, disease-preventing diet with protective substances. The rich nutrient food intake will provide maximum protection against not only infections, asthma, and allergies but also against heart disease and cancer in adulthood<sup>9</sup>.

So the patients must follow the “healthy food consumption” i.e. Pathya. Aahara kalpana is also used in Panchakarma as samsarjana krama to boost Jatharagni and the fatigued Annavaha Srotas (Digestive system), Purishavaha Srotas (Excretory system) to regain the healthy stage from weakened one (which happened during the process of purification)<sup>46</sup>. Agni is the jatharagni (digestive fire) anddhatuagni (metabolic fire) of the body. Agniis the sole cause for existence of life and its extinction leads to death. Its proper maintenance helps to live a long life and its detriment gives rise to many

diseases. Agni is responsible for colon strength, health, enthusiasm, plumpness, complexion, Ojas, and Teja<sup>47</sup>.

#### IV. CONCLUSION

Ayurvedic treatises have lots of knowledge regarding dietetics which can be introduced in specific manner that is pathya Kalpana makes our food healthy, pleasurable and suitable. It is helpful in both condition that is swastha and aatur. Although, it covers all nutritive values by proving all the six tastes (shadras) thus help in maintaining the five elemental (Panchabhautika) nature of the body. So Pathya Kalpana should be incorporated in our daily diet system to achieve the basic approach of Ayurveda. Although, it is proven that nutraceutical is connecting between the where both the system of medicine should shake their hands with enduring hardcore research and mutual acceptance of both the systems. As for, nutraceutical powerful appliance in maintaining health and to act against nutritionally induced acute and chronic diseases, thereby promoting optimal health, longevity, and quality of life. From the above concepts it is glaring 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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