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NUTRACEUTICALS A MODERN PARALLEL TO PATHYA KALPANA: A REVIEW

Dr. Shardul Chavan[1], Dr. Kanchan Suthar[2], Dr. Shailaja Singh[3]

[1]*Associate Professor, Department of Rasashastra and Bhaishajya Kalpana, APM'S Ayurveda Mahavidyalaya Sion Mumbai.*

[2]*Assistant Professor, Department of Rasashastra and Bhaishajya Kalpana, APM'S Ayurveda Mahavidyalaya Sion Mumbai.*

[3]*MD Scholar, Department of Rasashastra and Bhaishajya Kalpana, APM'S Ayurveda Mahavidyalaya Sion Mumbai*

Corresponding Author: *Dr. Shailaja Singh,APM'S Ayurveda Mahavidyalaya, Sion, Mumbai – 400022*

ABSTRACT

In Ayurveda, food is believed to influence both the mind and body. By understanding how to make foods that align with our unique constitutions, we can use nutrition as a powerful tool for healing. Traditional knowledge and modern science are coming together to show how food can be used as medicine. In Ayurveda, the concept of Pathya Kalpana highlights how food can be prepared in a way that supports healing and health. This idea is very similar to the modern concept of nutraceuticals, where certain foods or food-based products are used to prevent or manage diseases. Nutraceuticals is a word made by combining "nutrition" and "pharmaceuticals". These are food-based products that have proven benefits in managing long-term (chronic) diseases. This idea is quite similar to the Ayurvedic concept of Pathya Kalpana's ideas of Hita, Ahita, Satmya, Asatmya, and Pathya-Apathya are similar to how nutraceuticals are chosen and used. The Ayurvedic concept of Rasayana refers to certain foods that can be taken daily to maintain good health, boost vitality, and promote rejuvenation – this also matches the goal of nutraceuticals. This article explores the philosophical, functional, and therapeutic correlations between Nutraceuticals, Rasayana and Pathya Kalpana*, highlighting the potential for Ayurvedic dietary formulations to inform the future of functional nutrition and integrative healthcare.*

KEYWORDS: *Nutraceutical, Pathya Kalpana, Rasayana, Aahara, Nutrition, Diet.*

INTRODUCTION

Ayurveda is based on three pillars: *Aushadha* (medicine), *Aahara* (diet), and *Vihaar* (lifestyle). The ancient science of Ayurveda emphasises the role of food (*Aahara*) not merely as sustenance but as a cornerstone of both prevention and cure. The classical term *Pathya*, means food that is well-prepared and balanced, that are easy to digest, support disease recovery, and enhance overall well-being while being tailored to an individual's *Dosha*, *Agni*, and disease condition.

The systematic approach to preparing therapeutic and health-promoting foods is encompassed within *Pathya Kalpana* — a part of *Bhaishajya Kalpana* focused on medicated diets and wholesome preparations (*Pathya Aahara*).

The main purpose of *Pathya Kalpana* in Ayurveda is to highlight how important food is—both for keeping us healthy and for treating various health problems like imbalances in *doshas*, tissues, waste products (*malas*), and digestive fire (*Agni*). A proper diet helps to balance the three *doshas (Vata, Pitta, Kapha)* and nourish the *Saptadhatu* in the body. *Acharya Kashyapa* said that food (*Aahara*) is the best medicine (*Mahabhaishajya*) Acharya *Sushruta* has praised food for its many benefits. According to him, it nourishes the body, promotes instant health, supports strength, increases lifespan, and gives a healthy glow to the body. It also helps to improve energy, memory, vitality (*Ojas*), and digestion. Acharya *Vagbhata* has also shared similar views about the importance of food. To gain these benefits, one should eat the right kind of food (*Pathyakara Aahara*). Such food is not only good for maintaining health but also helps in faster recovery during illness.

The word "Nutraceutical" was first used by Stephen L. De Felice in 1989. It combines "nutrition" and "pharmaceutical" to describe food or food components that offer health benefits beyond basic nutrition, including disease prevention and treatment.The roots of the concept of nutraceuticals and functional foods can be traced to the ancient ayurvedic system of health care. In *Ayurveda* it is stated that, the diet which besides providing basic nutrition to the prevents the occurrence of diseases, should be consumed.

Nutraceuticals can be seen as a modern parallel to *Pathya Kalpana* in *Ayurveda*, which emphasizes the therapeutic use of food. Both *Pathya Kalpana* and nutraceuticals highlight the importance of food as medicine and emphasize the role of diet in maintaining health and preventing disease. Ayurveda's focus on balancing the *doshas* through diet can be seen as a way of addressing the root cause of illness, similar to how nutraceuticals target specific health conditions.

The concept of *Rasayana*, , is one of the eight main branches of Ayurveda. Ayurvedic texts mention *Rasayana* as a group of

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treatments that help strengthen the body. These are believed to work like micronutrients, protecting the body from both internal and external stress. Today, *Rasayana* can be compared to modern Nutraceuticals, which are becoming increasingly popular. Since nutraceuticals are linked with traditional systems of medicine, they are more easily accepted by people who already trust natural remedies.

MATERIAL AND METHODS

The present study is primarily based on a thorough review of classical Ayurvedic texts, along with their authoritative commentaries, which served as the principal source of information. In addition, contemporary resources such as published research papers, review articles, and related academic literature were referred to for supplementary insights.

Ayurveda as a Source of Nutraceuticals

Ayurveda has a highly developed understanding of food and nutrition, which is very different from the modern perspective. Instead of just focusing on nutrients, Ayurveda follows a holistic approach that includes individual factors like body type (*Prakriti*), age, climate, digestion (*Agni*), and *doshas*[1] . In Ayurveda, food is considered the best form of medicine.

Food is broadly categorised as *Hitakara* or *Ahitakara*, *Pathya* or *Apathya*, and *Satmya* or *Asatmya*. These classifications help determine which foods support health and which may cause harm. Today, there is growing scientific research and acceptance of nutraceuticals—mainly for their immune-boosting and antioxidant properties. These benefits are commonly found in herbs, minerals, or combinations of both, which help in maintaining health and fighting diseases caused by oxidative stress.

Ayurveda nutraceutical may help in Preventing age-related degeneration, Supporting recovery after illness and Boosting immunity [2]

Nutraceuticals

Nutraceutical is a term derived from the words "nutrition" and "pharmaceutical," It is defined as any substance that is a food or a part of a food and provides both nutritional and medicinal advantages. These products encompass dietary supplements, fortified foods, functional foods, and medical foods. Like *Pathya Kalpana*, nutraceuticals not only supplement the diet but also provide therapeutic benefits by supplying essential micronutrients and macronutrients.

Classification of Nutraceuticals [4] :

Nutraceuticals are usually grouped into the following categories:

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

1. Dietary Supplements

These are products made from nutrients naturally found in food and are used to add extra nutritional value to the diet. They include Vitamins (e.g., Vitamin D, B-complex), minerals (e.g., magnesium, zinc), and herbal extracts (e.g., ashwagandha, ginseng) are commonly used to support general health, reduce stress, and improve energy levels[3] .

Ayurvedic Examples

- ***Ashwagandhadi leh*** – Used for strength, immunity, and stress reduction.
- ***Guduchi* (Tinospora cordifolia)** – Boosts immunity and supports liver health.
- ***Amalaki* (Emblica officinalis)** – A rich source of Vitamin C, antioxidant, *Rasayana*.

2. Functional Food / Fortified Nutraceuticals

The concept of functional food was first introduced in Japan in 1991. Functional foods are those to which special ingredients are added to provide extra health or medical benefits, beyond just basic nutrition.

These include foods that have been fortified or enriched with additional nutrients, such as omega-3 enriched eggs, fortified cereals, and probiotic-rich yogurts [4] .

Ayurvedic Examples

- ***Chyawanprasha*** – Fortified avaleha with *Amalaki, Dashamoola, Pippali* etc., offering anti-ageing and immune-boosting effects.
- **Medicated Ghee (*Ghrita*)** like *Brahmi Ghrita* or *Triphala Ghrita* – fortified with herbal extracts to support memory, vision, and digestion.
- ***Ksheera Paka* (Herbal milk decoctions)** – e.g., *Arjuna Ksheera Paka*, which enriches milk with adaptogenic and nourishing qualities.

3. Pharmaceuticals / Recombinant Nutraceuticals[4]

The term pharmaceuticals is often used in agricultural and medical fields, especially when talking about the use of genetically modified (engineered) crops or animals for health-related purposes[4] . For example, many energy-giving foods such as bread, alcohol, fermented starch, yogurt, cheese, and vinegar are made using biotechnology.

Ayurvedic examples (parallel in processing rather than genetic engineering)

- ***Asava & Arishta*** (fermented Ayurvedic formulations) – e.g., *Draksharista*, *Arjunarista*, which are natural bio-fermented preparations aiding digestion, heart health, and metabolism.
- ***Takra* Kalpana (medicated buttermilk)** – probiotic-rich preparation, similar to functional dairy products today.

4. Medical Foods[4]

Medical foods are specially prepared products that are meant to be taken under the guidance of a doctor. They are designed to help manage specific health conditions or diseases that require special dietary needs. Medical foods are regulated by the FDA and will be prescribed/monitored by medical supervision[4].

Ayurvedic Examples

- ***Mudga Yusa* (Green gram soup)** – light, protein-rich, recommended in fevers and digestive weakness.

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- ***Peya, Yavagu, Manda*** **(medicated gruels)** – given in post-fever weakness, diarrhoea.
- ***Yavagu*** **with** ***Pippali*** – indicated in respiratory illness for easy digestion.

Prophylactic Nutraceuticals[6]

In Ayurveda, especially in the context of disease prevention and rejuvenation, the ancient Acharyas have mentioned several combinations that can be considered as prophylactic nutraceuticals. These are designed not just to nourish the body but also to prevent diseases and support long-term health.

These Ayurvedic combinations naturally contain all the essential nutrients such as proteins, fats, carbohydrates, vitamins, and minerals. They are found in formulations that are part of regular diet and lifestyle. Some examples include:

- *Oushadha Kanji* (medicated rice gruel),
- *Ksheerapaka* (herbal decoctions prepared with milk),
- *Krushara* (semi-solid rice preparations),
- *Nimbu Panaka* (lemon-based drinks),
- *Madhudaka* (honey water),
- *Rasaala* (spiced buttermilk), and
- *Kalahamsam* (a special nourishing preparation).

Benefits of Nutraceuticals[7]

Functional foods and nutraceuticals offer several health benefits, many of which are supported by modern scientific research. Some of the key benefits include:

- Boost Immunity – Strengthen the body's natural defence system against infections.
- Anti-aging & *Rasayana* Effect – Delay degenerative changes and promote longevity.
- Improve Digestive Health – Support gut health and metabolism.
- Chronic Disease Prevention – Help in reducing the risk of diabetes, obesity, cardiovascular disorders, and cancer.
- Adaptogenic & Stress Relief – Enhance resilience against physical and mental stress
- Antioxidant & Anti-inflammatory – Reduce oxidative stress and chronic inflammation.
- Post-illness Recovery – Aid faster healing and tissue regeneration.

Concept of *Pathya* Kalpana

The concept of the *Pathya* Kalpana involved that an interesting verse regarding the importance of the wholesome diet. Some examples of *Pathya* Kalpana are Manda, *Peya, Vilepi, Yavagu, Yusha, Krusara, Anna, Takra & Dadhi Kalpanas, Mamsarasa, Khada Kambalika, Raga Shadava*[2] etc.

Dietary preparations such as *Manda, Peya, Yavagu, Vilepi, Anna,* and *Krusara* are traditionally made using only rice and water. The difference in proportion of these ingredients results in changes in texture, consistency, and digestive properties. The central purpose of *Pathya* Kalpana is to reinforce the importance of diet in daily life and disease management.

Ayurveda is based on the concepts of *Agni* (digestive fire) and *Ama* (toxins formed due to improper digestion). Unhealthy food habits weaken *Agni*, resulting in *Agnimandya* and the formation of *Ama*, which eventually leads to disease. Therefore, *Pathya Palana*, or following a proper and nourishing diet, is considered an essential part of Ayurvedic treatment and for maintaining health.

In modern science, food is classified into three major groups—Carbohydrates, fats, and proteins. However, Ayurveda goes beyond this and considers food based on its *Dravya, Guna*, and *Pramana*. The effect of food also depends on an individual's *Prakriti, Dosha* balance, and strength of *Agni* [8] .

The effectiveness of any medicine depends on how well it is digested and metabolised, which again depends on Agni. The Ayurvedic approach to nutrition is comprehensive going far beyond modern nutritional science. Even in *Samsarjana* Krama, Ayurveda gives importance not just to calorie intake, but also to proper nourishment and balanced digestion[8].

Concept of *Rasayana* as a Nutraceutical

Among Ayurveda's preventive tools, *Rasayana* therapy stands out as the most advanced. It is tailored for different diseases, age groups, seasons, and body conditions, much like the modern concept of nutraceuticals.

The word *Rasayana* comes from two Sanskrit words—'*Rasa'* meaning the nourishing fluid formed right after digestion, and '*Ayan'* meaning the path or channel. So, *Rasayana* refers to that which enhances the quality of nourishment in the body. Many *Rasayana* herbs and formulations work like nutraceuticals, providing health benefits beyond basic nutrition[9].

Rasayanas can be seen as agents that go beyond simple healing. They help in both preventing diseases and enhancing vitality. Because of these features, *Rasayana* therapies in Ayurveda can be compared to the modern concept of Nutraceuticals.

Several classical texts mention different types of *Rasayanas*. These are not only used to maintain health but also to support the treatment and prevention of diseases.

Table 1: Some Ayurvedic formulations that function as nutraceuticals include[9] :

1.	*Chyavanprasha*	For overall health and preventing respiratory issues.
2.	*Phala Ghrita*	Supports reproductive health.
3.	*Arjuna Ksheerpaka and Rasona Ksheerpaka*	Useful for heart health.
4.	*Brahma Rasayana*	Helps reduce mental stress.

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Some *Rasayana* practices are age-specific, season-specific, or time-specific, for example[10] :

- *Ritu Haritaki: Haritaki* is used with different substances in each season, like *Saindhava* in monsoon, sugar in autumn, dry ginger in winter, etc.
- *Triphala Rasayana*: Different fruits are consumed at different times (e.g., *Haritaki* after meals, *Vibhitaki* before meals, *Amalaki* after meals).
- *Shatavari Ghrita*: Given to postpartum mothers to increase breast milk.
- Targeted *Rasayana* therapies like *Chyavanprasha* and *Pippali Rasayana* are used for respiratory disorders, while *Triphala Churna* with ghee is used to improve eyesight.

DISCUSSION

In today's world, people are focusing more on preventing illness and staying healthy in a natural way. Because of this, there's a growing interest in using food as a kind of medicine. Nutraceuticals—foods or food parts that help prevent or treat diseases—are becoming popular as they combine the benefits of both nutrition and modern medicine. While this seems like a new idea, Ayurveda has followed similar principles for centuries through its branch called *Pathya Kalpana***.**

Pathya Kalpana refers to specially prepared foods that suit a person's body type, health condition, and stage of illness. These foods are not just about taste—they are based on important Ayurvedic concepts like digestion (*Agni*), body energies (*Dosha*), tissue health (*Dhatu*), and the stage of disease *Vyadhi Avastha*[11] . Just like nutraceuticals aim to improve health, *Pathya Kalpanas* are meant to help the body heal and stay in balance using light, healthy, and healing foods.

One of the closest Ayurvedic concepts to nutraceuticals is *Rasayana*. These are remedies—made from herbs, foods, or practices—that help strengthen the body, slow down ageing, boost immunity, and improve memory. *Rasayana* can be medicines (*Aushadha Rasayana*), foods (*Ahara Rasayana*), or even healthy habits (*Aachar Rasayana*). They act like today's antioxidant or immune-boosting supplements.

For example, *Chyawanprasha* is a well-known herbal formulation in Ayurveda. It works like a modern superfood paste rich in antioxidants and immune boosters. Other preparations like *Ghrita* (medicated ghee) *or Ksheera Paka* (herbal milk) are similar to fat-based or dairy-based health products we see today[12]
The way *Pathya Kalpanas* are prepared is also very scientific. Ayurveda gives clear methods—like how much water to use with rice for a porridge (*Yavagu*), which drink (*Anupana*) goes best with buttermilk (*Takra*), or which herbs like *Guduchi or Amalaki* should be added. These details help ensure consistency and effectiveness—something modern nutraceutical science also values.

In elderly people, who often have weak digestion and take many medicines, *Pathya Kalpana* can offer gentle, easy-to-digest, and personalised food support. For example, green gram soup (*Mudga Yusa*) with pepper (*Pippali*) or herbal ghee-based soups are excellent for old age, combining nutrition and medicine in one[13] .

Modern nutraceuticals often contain vitamins, minerals, plant extracts, and amino acids. While they are useful, they don't always consider a person's body type, season, or mental state—things Ayurveda takes very seriously. Ayurveda's diet system also changes with the seasons (*Ritu*), location (*Desha*), and even the person's mind (*Satva*), making it truly complete.

Even though there are many similarities between Ayurveda and modern nutraceuticals, Ayurvedic dietetics still need more scientific research and policy support. While nutraceuticals are part of modern healthcare and regulation, *Pathya Kalpana* is still not fully studied or used in mainstream medicine.

CONCLUSION

Although *Pathya Kalpana* is an ancient Ayurvedic concept, it presents a clear and well-structured system of healing through food — very similar to how nutraceuticals work today. Its focus on digestion (*Agni*), personal constitution (*Prakriti*), and holistic care goes beyond just the nutritional content of food. Instead of treating nutraceuticals as a modern invention, we can understand them as a revival of Ayurveda's age-old wisdom about using food as medicine. By bringing the principles of *Pathya Kalpana* into modern healthcare and nutraceutical research, we may discover safer, more effective, and more personalised ways of supporting health through nutrition[15] .

The idea of *Pathya Kalpana* gives us a time-tested and culturally rich way of understanding diet that closely matches the goals of today's nutraceuticals. Ayurveda treats food as medicine and uses *Rasayana* (rejuvenation) principles to improve health, showing that this approach is not only traditional but also supported by scientific logic.

To move forward, Ayurvedic experts and modern nutritionists should work together. By combining traditional wisdom with modern technology and safety standards, we can create Ayurvedic nutraceuticals that are effective, personalised, and trusted in both traditional and modern systems of healthcare.

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