

THE SIGNIFICANCE AND APPLICATION OF ANUPANA IN ANCIENT AND CONTEMPORARY SCIENCE : A REVIEW**Anuj Negi¹, Usha Sharma², Shuchi Mitra² Khem Chand Sharma³**

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**ABSTRACT**

Ayurveda is a science that deals with healthy living as well as the treatment of illnesses. In both circumstances, the concept of *anupana* is mentioned. The two types of treatment described by Ayurveda for maintaining equilibrium are *Oorjaskara* and *Roganut*. *Anupana* plays a crucial role in *chikitsa*, and the administration of medications in ayurveda is a science in and of itself. *Anupana* offers multiple health benefits for the body, including nutritional, stimulating, preventative, and curative ones. It serves as a vehicle to boost the effectiveness of other foods and medications so that they have the intended effects in the specific disease condition. It aids in better *Ahara* and *Bhaishajya* digestion and absorption so that the body receives optimum nutrient replenishment. It is essential to use ideal *Anupana* along with the appropriate drug therapy to cure the illness. *Jala* is regarded as a *shrestha* (Supreme) *anupana* among the various types of *Anupanas* described in Samhitas. This present review emphasizes the screening of various *Anupana* and their effect in *Swasthya* and *Roga* Purush.

Keywords: Anupana, Bio-enhancer, Vehicle

INTRODUCTION

Ayurveda is a science that deals with healthy living as well as the treatment of illnesses. In both circumstances, the concept of *Anupana* is mentioned. The two types of treatment described by Ayurveda for maintaining equilibrium are *Oorjaskara* and *Roganut*.^[1] *Rasayana* or rejuvenating therapy, is the name given to *Oorjaskara*. In *Roganut*, the distinction between *Shamana Chikitsa* (Pacification) and *Shodhana* (Purification) is made. *Anupana* plays a crucial role in *chikitsa*, and the administration of medications is a science itself. Along with several sorts of *Anupana* based on *roga*, *kala*, and *Dosha*, our science offers a unique method of administering *Ahara* and *Aushadh*. Under various circumstances, it is mentioned along with foods and pharmaceuticals. *Anupana* (Vehicle) is supplied together with *Aushadh* (Medicine) to enhance its taste and cover up the unpleasant stench of the *Dravya*; it is primarily given for delivering the necessary substance to the desired location. It causes certain modifications in a chemical that is administered together with it. They perform everything from the most basic to the most complex tasks in various ways. In modern science *Anupana* (Vehicle) is defined as a fluid that is taken with or after food or medicine and that aids or assists the main ingredient's action. It also refers to a synergist, a vehicle to enhance antigenicity in immunology, and the use of another type of treatment in adjuvant therapy, such as in oncology, in addition to primary surgical therapy.^[2] Let's take a look at how well-established the idea of *anupana* is in ayurveda.

MATERIAL AND METHOD

Nirukti-ANU+PANA

Anu is an "avyaya" and an "upasarga vishesha," according to Sanskrit. The word "anu" has meanings such as "asyaathaha," "pashchaat," "sadrushyam," "lakshanam," "bhaagaha," "heenaha," "sahaarthaha," "aayaamaha," "sameepam," and "paripaatee."^[3]

The word "ANU" has several different English terms, including "after," "there upon," "again," "further," "behind," "then," "alongside," "lengthwise," "over," "through," "towards," "at," "according to," and "in order," as well as "near to, under," "with," "along with," and "connected with."

Pana-Panam is created from the "paa" *dhatu* and the "lyut" pratyaya. The word "pana" has several different English definitions, including "drinking," "drinking spirituous liquors," "sharpening," and "protection."^[4] **Synonym^[11]**.

The following list of synonyms for *Anupana* includes the several phrases that have been used to convey its meaning in various contexts:

Anupana - The one that is ingested together with or afterwards the *bhesaja*.

The Sanskrit word *vahana* means "the one who carries."

Sahayogi - The term refers to a uniter.

Maadhyama is Sanskrit for "taken in the middle" or "one whom acts as media."

Anutarsha - The word means one who satisfies thirst.

Anupeya - Denotes a single item consumed before or after food.

Anupaneeya: Denotes a substance used with meals.

Aushadhanga peya - *Peya* used in conjunction with medication.

Definitions of *Anupana* as per Various Acharya-

1. According to the Susruta Samhita's Dalhana commentary, "*Anupana* is the liquid taken immediately after food or along with it."^[5]
2. Charaka samhita commentary by Chakrapani "*Anupana* stands for vehicles in the context of administration of medicinal recipes or food, which denotes the mixing of liquids with medicine or food."^[6]
3. According to Vagbhatacharya, "*Anupana* is the media that can be given either before or after or combined with medicine or diet"^[7]
4. As per Yogratnakara "If the medication is administered by skilled doctors in conjunction with *Anupana* to treat a certain ailment, *Anupana*'s power will undoubtedly cure that disease."^[8]
5. according to Acharya Priyavrat Sharma "consumption of food and medicine is *Anu Saha Pashchat* (together with and after) taken liquids known as *Anupana* (Vehicle)."^[9]

6. The vehicle used after the primary medicine has been administered as *anupana* (Vehicle) in the Adhamalla commentary on Sarangdhara.^[10]

Types of Anupana(Vehicle)

Anupana (Vehicle) can be categorised according to its utility:

1. **Aharopayogi Anupana (vehicle-supported food items)**

2. **Aushadopayogi Anupana, (a vehicle that promoted drug and medication use.)**

Aharopayogi Anupana –

The *swaropa* (nature) of *Anupana* (Vehicle) with respect to food itself has been given by the ancient Acharyas Charaka, Sushruta, and Vagbhatt so that *Anupana* (Vehicle) should be different from its characteristics of food. However, the characteristics of the *Anupana* (vehicle) and *dhatu*s (body tissues) should not be antagonistic. Such a *Anupana* (vehicle) is always regarded as a *prashashta Anupana*.^[12]

Aushadopayogi Anupana (Vehicle - Supported with drugs) -Later Acharyas like Yoga Ratnakara emphasized that the *Anupana* (Vehicle) is administered with *Aushadha* (medicine), irrespective of food. By taking into consideration the *rogi* and *roga* (patient and ailment), as well as the *avastha* (stage) and *bala* (strength) of each, the *Aushadha* (medicine) becomes more potent when administered with the appropriate *Anupana* (Vehicle).^[13]

Role of Anupana-^[14-15]

As per Acharya charak It Gives *Tarpana* (satisfaction), *Prinana* (pleasure/gratification), *Urja* (strength), and *Brimhana* (increases body mass).

aids in the disintegration, digestion, and softening of the meal.

provides a feeling of well-being through proper food digestion and aids in the development of physical strength following proper food digestion and assimilation.

According to acharya shusruta^[16]

It acts as *Rochana* (improves the taste),*Bruhamna* (gives nourishment), *Vrushya* (improves the potency),*Doshasanghatbhedanam* (alleviates three Doshas),*Tarpana* (brings about refreshment),*Mardavakaranan* (soften the food),*Shramaklamahara* (relieves fatigue),*Dipana* (act as appetizer),*Doshashamana* (alleviates three Doshas),*Pipasachedanam* (relieves thirst),*Balya* (gives energy),*Varnakaran* (improve complexion)

Ashtang hridayam^[17]

It may result in *Urja* (enthuse). *Preenayati* (pleasing), *Dhruti* (steadiness), *Brimhana Jarana* (helps in digestion), *Parinaama* (helps in digestion of food), *Vyapti* (permeates everywhere), *Trupti* (satisfaction), and *Sthira Sharirata* (gives power to the body) are all benefits of *Anupana*.

Best Anupana- *Mahendra jala* (rainwater), of all varieties of *Dravya* (liquid), is regarded as the best *Anupana*, in accordance with *Aacharya Sushruta*.^[18]

Jala (water) is regarded as the ideal *Anupana* for both healthy and ailing individuals, according to *Ashtang Sangraha*. *Jala* (Water) is the best medium since it is *Shadrasatmka*, enhances flavour, is *Satmya* (appropriate for all humans), and sustains life.^[19]

Anupana as per Sneha dravya^[20]

S. No.	Sneha	Anupana
1.	Ghruta	Ushna jala (warm water)
2.	Taila	Yusha
3.	Vasa and Majja	Manda
4.	Following the intake of any Sneha Kalpana (Ghruta, Taila, Vasa, Majja) in general	Ushna jala

Anupana as per Acharya Shusruta for various Sneha^[21]

S. No.	Sneha	Anupana
1.	Bhallatak and Tuvarak taila	Sheet jala

2.	<i>Taila</i>	<i>Yusha, Amla kanji</i>
3.	<i>Generally following consumption of any Sneha Kalpana</i>	<i>Ushna jala</i>

Anupana as per involved Doshas^[22]

S.No.	Dosha	Anupana
1	<i>Vaata</i>	use unctuous and warm drinks
2	<i>Pitta and Rakta</i>	consider sweet-cold liquids
3	<i>Kapha</i> aggravation	use rough/dry and warm liquids

Anupana according to kaal^[23]

Anupana classified according to *kala* in the context of *ahara sevana* as follows:

S.No.	Kaal	Anupana effect
1	<i>Adipana</i> (Beginning of the Meal)	Consuming liquids prior to or before meals causes the body to become <i>Karshana</i> (emaciated), which can be indicative of <i>Sthoulya</i> (Obesity).
2	<i>Madhyapan</i> (Middle of the Meal)	The liquid substance that is consumed in between the food is referred to as <i>Madhyapana</i> and it aids in maintaining the body
3	<i>Antapana</i> (End of Meal)	If <i>Anupana</i> is consumed at the end of meals, stoutness (<i>Brumhana</i>) develops.

Anupana according to Ritu (Seasons)^[24]

S.No	Ritu	Anupana
1.	<i>Sharad and Grishma</i>	<i>Sheet Jala</i>
2.	<i>Hemant</i>	<i>Ushna Jala</i>

Different Anupana of dravya according to different Kaala^[25]

Dravya	Kala	Anupana
<i>Haritaki</i>	<i>Varsha</i>	<i>Saindhava</i>
	<i>Sharad</i>	<i>Sharkara</i>
	<i>Hemanta</i>	<i>Shunti</i>
	<i>Shishira</i>	<i>Pippali</i>
	<i>Vasanta</i>	<i>Madhu</i>
	<i>Greeshma</i>	<i>Guda</i>

Anupana as per Roga/Vyadhi:

Numerous references in Ayurveda illustrate how a single/compound formulation or a medicine is employed in various diseases based on various *Anupanas*, demonstrating the significance of *Anupana*.

Yograj Guggulu^[26]

Drug	Dosha	Anupana
Yograj Guggulu	<i>Vata</i> -related disease	<i>Rasnadi Kwath</i>
	<i>Pitta</i> diseases	<i>Kankolyadi kwath</i>
	<i>Kapha</i> diseases	<i>Aragwadhadi kwath</i>

According to Roga^[27]

S.NO.	Anupana	Roga
1	<i>Paya</i> (Milk)	<i>Upavasa</i> (Fasting), <i>Adhva</i> (tired by walk), <i>Bhashya</i> (after excessive discourse), <i>stree-pasang</i> (after intercourse), and <i>klanta</i> (Tired folks).
2	<i>Mamasa rasa</i> (Meat soup)	<i>Kshayarogi</i> (tuberculosis and malnourished people)
3	<i>Madya</i> (Alcohol)	<i>Alpagni</i> (less digestible fire), <i>Anidra</i> (insomnia), <i>Tandra</i> (drowsiness), <i>Shoka</i> (lamentation), <i>Bhaya</i> (phobias and terror), and <i>klamarogi</i> (exhausted).
4	<i>Sura</i> (Type of Wine)	used in <i>Krusha</i> (Lean) Person. <i>Madhudaka</i> (Type of Wine) is used in <i>Sihula</i> (Obese) Person.

The Anupana dravya explained by Yogaratnakar in terms of several ailments.^[28]

S.No.	Roga	Anupana
1.	<i>Jwara</i> (fever).	<i>Kirattikta</i> (<i>Swertia chirata</i>), <i>musta</i> (<i>Cyperus scariosus</i>), and <i>parpata</i> (<i>Fumaria indica</i>)
2.	<i>Grahini</i> (irritable bowel syndrome)	<i>Takra</i> (Buttermilk)
3.	<i>Pandu</i> (Anaemia)	<i>Mandura Bhasma</i>
4.	<i>Arsha</i> (Haemorrhoids)	<i>Bhallataka</i> (<i>Semecarpus anacardium</i>), <i>chitraka</i> (<i>Plumbago zeylanica</i>)
5.	<i>Kshaya</i> (Emaciation/Tuberculosis)	<i>Shuddha shilajatu</i>
6.	<i>Shula</i> (generalised or specific pain)	Fried <i>Hingu</i> (<i>Ferula narthex</i>) and <i>karanjabeejamajja</i> (<i>Pongamia glabra</i>)
7.	liver and spleen problems	<i>Pippali</i> (<i>Piper longum</i>) <i>churna</i>
8.	<i>Nidrakshya</i> , or insomnia	<i>Sharkara</i> (sugar) and <i>Mahishdugda</i> (buffalo milk)

Anupana (Vehicle) mentioned for Dosha^[29-30]

Dosha	Anupana	Anupana Dravya	Matra
<i>Vata</i>	<i>Ushna Jala</i>	- <i>Sura</i> (wines) <i>Souviraka</i> (fermented drink), <i>Tushodaka</i> (fermented drink), <i>Medaka</i> (a spirituous liquor used for distillation) <i>Dhanyamla</i> , (fermented medicinal preparation) <i>Phalamla</i> .	1 Pala
<i>Pitta</i>	<i>Sheeta Jala</i>	<i>Mrudvika Svarasa</i> (juice), <i>Amalaki Svarasa</i> , <i>Parushaka Svarasa</i> . (juice).	2 Pala
<i>Kapha</i>	<i>Ushna Jala</i>	<i>Madhu</i> (Honey), <i>Gomutra</i> (cow urine), <i>Kwatha</i> (Decoction)	3 Pala

Anupana for Ras sindoor^[31]

Dravya	Anupana	Roga
<i>Ras sindoor</i>	<i>Tulsi patra rasa, Adrak swarasa</i>	<i>Nava Jwara</i>
	<i>Giloy, parpat, Dhanyaka kwath</i>	<i>Jeerna jwara</i>
	<i>Giloy swaras, Haridra swarasa</i>	<i>Prameha</i>
	<i>Ashoka, Bala, Lodhra kwath</i>	<i>Pradara</i>
	<i>Bala abhaya kwath</i>	<i>Arsha</i>
	<i>Vacha churna</i>	<i>Apasmar</i>
	<i>Kushmand swaras</i>	<i>Unmada</i>
	<i>Vibhitaki kwath, Vasa swarasa</i>	<i>Swasa roga</i>
	<i>Daru haridra</i>	<i>Kamala</i>
	<i>Loha Bhasma</i>	<i>Pandu roga</i>
	<i>Sitopala, Sukshma ela churna, Shilajatu</i>	<i>Mutra krucha</i>
	<i>Madhu and Musta kwath</i>	<i>Ajeerna</i>
<i>Triphala kwath</i>	<i>Udara shoola</i>	
<i>Pippali churna and Madhu</i>	<i>Murcha roga</i>	

<i>Badi Ela kwath and Madhu</i>	<i>Vamana</i>
<i>Punarnava kwath</i>	<i>Sarvang shotha</i>
<i>Chaturjatak churna, Giloy+neem+khadir+Kutaja kwath</i>	<i>Visphota</i>
<i>Kakoli churna+Narikela taila</i>	<i>Jarayu Roga</i>
<i>Vanga Bhama+ Madhu</i>	<i>Prameha</i>
<i>Trikatu churna+Dhanyaka+Jeerak churna with Madhu</i>	<i>Daruna Vamana</i>
<i>Bhrahmi+Vacha+Shankhapushpi+Kutha+Ela kwatha</i>	<i>Apasmara</i>
<i>Triphala and Vayavidang kwath</i>	<i>Bhagandar</i>
<i>Mishi+Balabhaya kwath, Ajwain churna+Vidalavana</i>	<i>Gulma</i>
<i>Dashamoola kwatha</i>	<i>Vatakaphatamak Shirashoola</i>
<i>Kantakari+Sugandhabala+Giloy +Sunthi kwatha</i>	<i>Vrana</i>
<i>Guduchi+Motha+Shatavari+Pippali+Haritaki+Sunthi kwath</i>	<i>Chira Amavata</i>
<i>Shalmali churna+Mushli churna with Dugdha</i>	<i>Vajikarana</i>
<i>Abhraka bhasma, Swarana Bhasma</i>	<i>Dhatu vridhi</i>
<i>Jayaphala+Longa+Karpura+Ahiphena churna</i>	<i>Swapana meha</i>
<i>Bala kwatha</i>	<i>Shirakampa</i>
<i>Jeerak+Trikatuchurna+Kantakari +Haritaki+Dhanyaka</i>	<i>Vamana</i>
<i>Hingu+Ajwain+Shunthi+Chavya+Dhanyaka+Sovarchala la- vana</i>	<i>Madatyaya</i>
<i>Chavya+Tanka</i>	<i>Parinama shoola</i>
<i>Vasa kwatha, Lodhra Kashaya</i>	<i>Rakta pradara</i>
<i>Triphala kwatha, Kaanji</i>	<i>Bastikundal</i>
<i>Tulsipatra swarasa</i>	<i>Nava Jwara, Pratishyaya</i>

Classification of Ayurvedic concepts related with bio-enhancing effect.^[32-33]

Modern science is novel with bio-enhancers or bio-potentiators. In contrast, Ayurveda has employed a variety of medications as bioavailability enhancers since the dawn of time. In essence, Ayurveda is where this idea first arose. Bose reported it for the first time in 1929.

Anupana work with numerous way such as

1. Vehicle
2. Synergistic
3. Adjuvant
4. Appetiser
5. Digestive

Trikatu is the name for the combination of three acrid medications, *Maricha* (*Piper nigrum* Linn.), *Pippali* (*P. longum*), and *Shunthi* (*Zingiber officinale* Rosc.), with "piperine" as the main phytoconstituent, which

increases the bioavailability of medications, nutrients, vitamins, and other substances.

Ayurvedic practitioners frequently use *Pippali* (*Piper longum*) and *Maricha* (*Piper nigrum*) as examples of *Yogavahi* since they both contain the potent active ingredient "piperine" (1-piperonyl piperidine), which has a bio stimulating effect. A well-known bio-enhancer called piperine is used to increase the bioavailability and effectiveness of a variety of medications, including vasicine, sparteine, sulfadiazine, rifampicin, phenytoin, and propranolol.^[34-35]

It has been discovered that the ability of piperine to boost bioavailability can be imparted to higher absorption, which may result from changes in the dynamics of membrane lipids and the conformation of intestinal enzymes. It has been shown that piperine raises the serum concentrations and prolongs the serum half-life of several nutrients, including beta-carotene and

coenzyme Q10. Many Ayurvedic authors regard honey as the best *Yogavahi* based on its historical uses.^[36]

The effectiveness and bioavailability of medications may be improved by co-administration of *Anupana*, which has *Yogvahi* characteristics.

Mechanisms of action of herbal bio-enhancers (Anupana)-

By improving the blood flow to the stomach and altering the activity of several active transporters, like P-gp. P-gp is an efflux pump that pumps medications out and keeps them from getting to their intended destination. In this situation, bio-enhancers work by blocking P-gp. via reducing intestinal motility, gastric emptying time, and gastrointestinal transit. By inhibiting the drug's ability to be eliminated, such enzymes as CYP 3A4, CYP 1A1, CYP 1B2, and CYP 2E1 in the liver, gut, lungs, and other locations, as well as by preventing glomerular filtration, active tubular secretion by inhibiting P-gp, and passive tubular reabsorption, drugs can remain in the body for longer periods of time. changes to the permeability of the GIT epithelial cell membrane. qualities that are thermogenic and bioenergetic. inhibition of drug metabolising enzymes, suppression of first-pass metabolism, and activation of GGT activity, which improves amino acid absorption.^[37]

Importance of Anupana in Chikitsa

In Ayurveda chikitsa, *anupana*, or the adjuvant for food or medicine, has relevance and importance.^[38] According to an *Acharya*, *Anupana's* influence spreads the medicine in a similar way to how oil does in water. The effects of the medication are improved when the right *Anupana* is used during administration.^[39-40]

In *Adhamalla teeka*, it is mentioned that the use of *anupana* speeds up the dispersion of medication throughout the body. According to what has been said, the drug will reach every region of the body through two *Anupana* effects: first, *anupana bala*, or the vehicle's strength, and second, *anupana sakti*, or the vehicle's potency. If water is not taken in after eating, the meal will get dry and will cause many illnesses in the body. However, even if the amount of food ingested is

excessive in both quantity and quality, normal digestion is still accomplished by taking an adequate *Anupana* after eating (*Guru, Adhika matra yukta anna*). The medicine's effectiveness in curing the illness will enhance with *Anupana's* assistance.^[41]

Important points about Anupana-

Anupana considerably aids in the treatment of disease since it facilitates the simple absorption of medication from the intestines.

Eg.1. *Giloya* decoction in diluted water is excellent for treating diabetes and gout.

Eg 2. In cases of fever and infection, a diluted neem decoction may aid in the fight against germs.

Anupana is an option that can be chosen based on body type.

Eg.1. *Anupana* for an obese person should consist of one teaspoon of honey and one cup of water.

2) Milk is ideal for people who walk long distances, speak for extended periods of time, regularly engage in sexual activity, have practised prolonged fasting, have been exposed to the sun for an extended period of time, and engage in strenuous activities. It is also ideal for people who are disabled due to chronic diseases and treatment for patients. For both children and older people, milk is an excellent beverage.

Contra-indications of Anupana^[42]

- *Swasa*
- *Kasa*
- *Praseka*
- *Hikka*
- *Swarabheda*
- *Urakshata*
- *NetraRoga*
- *Geeta*
- *Bhashya*
- *Klinna person*
- *Prameha*
- *Kantharoga*
- *Vrana*

For such individuals, it disrupts the stomach and chest, increases food moisture in the neck, results in watery tissue discharge, and causes indigestion, vomiting, and other illnesses.

DISCUSSION

When we consider the nirukti of *anupana*, its actions as a vehicle come to thoughts because of its abilities to facilitate easy digestion, serve as a catalyst (increasing the drug's activity), and provide more results when treating patients. The best *anupana* is based on choosing the right dravya for a specific type of *roga* (disease) and *rogi* (diseased), for instance. *Anupana* is ideal for certain *roga*, but *Jala* is generally a suitable *anupana* for most *rogi* and *roga*. The same medicine produces different outcomes and takes different actions when the *Anupana* is changed. *Anupana* itself suggests that it is a liquid substance. According to *Vagbhata*, *Charaka*, *Susrutha*, and *Sharngadhara*, *anupana* is a liquid medium. However, even solid objects can be utilised as *anupana*. For instance, *Sita-Guduchi-in-Pitta-Roga*

CONCLUSION

The theory of *Anupana*(Vehicle) is a special addition and a crucial component in the management of *Aushadha* as well as *Ahara*. *Anupana* plays a significant part in improving *aushadhabala* and *rogibala* as well as potentiating medication activity through pharmacodynamics and pharmacokinetics. We can treat a variety of illnesses with the same medications by using different *anupanas*, which means *anupanas* can readily alter the primary medication's mechanism of action. *Anupana*(Vehicle) has multiple benefits; it acts as a nutrition, treats illnesses, prevents them from recurring, and shields a person from the negative effects of *dravya*. *Dugdha* (Milk) in *Jalodara* (ascites), *tankana* (borax) and *vatsanabha* (aconite), and *ardraka* (wet ginger) with *tamra* (copper), these *Anupana* alter the negative effect of the *Dravya* and impart various beneficial effects. This review is emphasized to compile the benefits of *Anupana* and its benefits in *Roga* and *Swastha Purusha*.

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