

A Review on Ayurvedic Nutraceuticals

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Abstract- Nutraceutical is applied to products that are isolated from herbal products, dietary supplements, specific diets, processed food that, other than nutrition are also used as medicines. Considering the burgeoning diseases due to the fast-paced lifestyles, the huge health care costs and the unavoidable side effects associated with modern medicine, the world is gradually shifting towards a preventive and holistic approach. In Ayurved, the health and immunity of the healthy individual is to be preserved through diet, lifestyle, drugs while the ones suffering from ailments are treated holistically with *Rasayan chikitsa* as the final leg of therapy. Myriad nutraceutical references are available in the classical Ayurvedic texts like *balya, shramahar, bruhan, medhya, rasayan* which needs to be grouped and analyzed as per the indications. An elucidated analysis of the Nutraceuticals is discussed in the paper below.

Index Terms- Nutraceutical, Balya, Rasayan, Medhya, Bruhan.

I. INTRODUCTION

Nutraceutical is a product isolated, derived or processed from natural sources and sold in the medicinal form (powder, tablet, capsules, etc.) The term is applied to products that are isolated from herbal products, dietary supplements, specific diets, processed food that other than nutrition are also used as medicines. Nutraceuticals are used to improve health and immunity, delay the aging process, prevent chronic diseases, increase the life expectancy, support the structure and function of the body.

The types mainly consist of –

1. Nutrients: Substances which have nutritional foods e.g. Vitamins, Minerals, Amino acids, Fatty acids.
2. Herbals/ phytochemicals: Derived from herbal, botanical sources.
3. Dietary Supplements: e.g. Probiotics, Pre-biotics, Anti-oxidants, Enzymes.

II. AIMS AND OBJECTIVES

To review the nutraceutical references in Ayurved.

To comment on the applications of nutraceuticals as a potential palliative and preventive treatment.

III. METHODOLOGY

All the literature associated with Ayurvedic nutraceuticals were procured, reviewed and classified according to the guna and karma.

A wide variety of nutraceutical references are found in Ayurveda like *Balya, bruhan, jeevaniya, Medhya, ojovardhak, Rasayan* which fits into the mould concept of holistic nutrition.

1. Balya

The drugs specified in this group are *Aindri, Kapikacchu, Shatavari, Ksheeridari, Maashparni, Ashwagandha, Shaaliparni, Katurohini, Bala, Atibala*.^[1]

Sushrut in *Sutrasthan* has mentioned *Gokshur, Bruhati, Kantkari, Vidadarigandha* as *balya*

Rasa-tikta, Madhur Vipaka – Madhur Veerya-sheet, ushna Guna-guru, snigdha, sthira

The concept of *balya* in Ayurved is not merely as strength promoter. *Bala* is a function of *Prakrit kapha*.^[2]

Decreased *bala* is related to the aggravation of *vaat*^[3] and *pitta* and since vitiation of *Agni* is the root cause of all disorders, *bala* is the function of *agni*,^[4] *shukra dhaatu*.^[5] *Maamsa, meda dhatu, purisha. Balya drugs due to tikta, laghu guna cause dhaatwagni deepan, srotoshodhan* which results in optimal formation of *rasa* and other *dhaatus* progressively due to proper dhatuposhan. In atipravrutti of *purisha* (diarrhoea), especially in diseases like *raajyakshma, tikta, ushna guna* causes a *grahi* effect protecting the *bala, prana* of the patient^[6]. *Stanya* is an updhatu of *Rasa*. These drugs with *Madhur ras, vipaka, Sheet* potency lead to *dhatu poshan* and *rasa vridhdhi* thereby acting as galactagogues.

2. Bruhan

The drugs under this group are *ksheeridari, dugdhika, ashwagandha, kakoli, ksheerkakoli, Shweta bala, peet bala, vidarikanda, vrudhdhaar, vankarpaas*.^[7]

Vidarigandhaadi, Kakolyaadi Gana- Bruhan.^[8]

Vidaryaadi – Bruhan Gana.^[9]

Rasa-Madhur, tikta, kashaya. Vipaka- Madhur

Veerya-Sheet/ slight ushna Guna- Guru, snigdha, picchil.

The *bruhan* drug should have the following properties^[10] *Guru, sheet, mridu, snigdha, bahal, sthool, picchil, manda, sthira, slakshna*. The above mentioned *guna* helps to pacify *vaat pitta* ^[11] and increase *kapha*. The two *dhaatus* responsible for ‘Bulk promotion’ are *Maamsa and Meda*. *Maamsa* is responsible for *sharirpushti*.^[12] (sustenance of the body) and *Meda dhatu* begets *pushti* as well as *dridhtva*.^[13] (sustenance, sturdiness of

body).The drugs specified under *bruhan* with their aforementioned *gunas* are analogous with the *gunas* of *Maamsa* and *Meda*.

APPLICATION

Bruhan is a recommended therapy in all types of *vaatvyaadhi*, *hikka*, *shwaas*^[14] since these arise mainly due to the aggravated *vaat dosha*. It is also indicated in *grishma ritu*, in individual debility post any infection or disease like *raajyakshma*, in the postpartum period^[15]. In cases of prolonged usage of *bruhan* drugs, care must be taken since *bruhan* drugs due to its properties causes *Agnisaad* (diminished Agni)

3. *Shramhar* (Anti-fatigue)

The drugs under this group are *Draaksha*, *daadim*, *kharjur*, *priyaal*, *mushali*, *parushak*, *ikshu*, *yava*, *shastika*.^[16]
Parushakaadi Gana^[17]
Rasa-Madhur, *Amla*, *Kashay Vipaka -Madhur*
Veerya- Sheet Guna- Snigdha, *guru/laghu*, *mridu*, *sara*.

Shrama or Fatigue is a symptom associated to diminution of *rasa* ^[18], *shukra* and *asthi dhaatu* ^[19].It is one of the prodromal symptom of *Pandu rog* and commonly seen due to intense or over-exercising i.e *ativyaayam* ^[20] The drugs specified under this group by the virtue of *sara guna* causes *doshanuloman*, *vaatanuloman*, curbs vitiated *vaat* in *koshtha*. *Madhur*, *sheet*, *snigdha guna* causes *pittashaman* and a specific action of *tarpan* of all *rasaadi dhaatus*.

APPLICATION

This mode of action can further be applied clinically in some conditions of *jwar*^[21] or post-febrile conditions like *trushna*(excessive thirst) , *daaha* (burning sensation) , *aruchi* (anorexia), *daurbalya* (weakness), *shosh*(emaciation), which indicates that the drugs can be utilized either for a quick rejuvenation of *dhaatus* or through a prolonged usage called as ‘ *abhyas tarpan*’^[22]. The table below is denoted for specific action of the drug on *dosha-dhaatu*.

DOSHA	DHAATU	DRUG
<i>Vaat</i>	<i>Rasa</i>	<i>Draaksha</i>
<i>Vaat</i>	<i>Rakta</i>	<i>Daadim</i>
<i>Vaat</i>	<i>Maamsa</i>	<i>Kharjur</i>
<i>Vaat</i>	<i>Asthi- Majja</i>	<i>Priyaal</i>
<i>Vaat</i>	<i>Shukra</i>	<i>Mushali</i>
<i>Pitta</i>	<i>Rasa</i>	<i>Parushak</i>
<i>Pitta</i>	<i>Rakta</i>	<i>Ikshu</i>
<i>Tridosh(vaat, pitta, kapha)</i>	<i>Balya, Sthairyakrut</i>	<i>Yava, Shashtika</i>

4. *Medhya* (Neuro-nutrient / Brain tonic)

Juice of *Mandukparni*, *Yastimadhu choorna* with milk, *Shankhapusphi kalka* are some of the examples^[23]
Rasa- Tikta pradhaan, *kashay, Madhur*.
Vipaka- Madhur Veerya- Sheet / Ushna
Guna- Guru/ laghu, Snigdha, Picchil

Medhya rasayan as described above by *charak* are a group of drugs which act on intellect, memory, and other faculties of brain function by action of *Prabhava*. *Medha* consists of 1. *Dhi* (

intellect) 2. *Dhruti* (power, retention) 3. *Smriti* (Memory). *Medhya* drugs decrease the level of catecholamines in the body and these drugs possess anti-stress, anti-anxiety, and adaptogenic effect. In broader sense, the drug distribution can be done as follows-

<i>Buddhi</i> (Intellect)	<i>Smruti</i> (Memory)	<i>Medha</i> (Brain tonic)
<i>Jyotishmati</i>	<i>Shankhapusphi</i>	<i>Haritaki</i>
<i>Brahmi</i>	<i>Mandukparni</i>	<i>Bhallatak</i>
<i>Haritaki</i>	<i>Ghrita</i>	<i>Kashmari</i>
		<i>Jeerak</i>
		<i>Jatamaansi</i>
		<i>Shatavari</i>
		<i>Vruddhdaru</i>

APPLICATION

They are used for the treatment of psychological and psychosomatic disorders like *unmada* (delirium), *apasmaar* (epilepsy), *buddhibhramsha* (impaired intellect), *visham buddhi*(anxiety/ distress) etc. *Brahmi* acts as a Nootropic, *Mandukparni* as a psychotropic, *shankapusphi* as a memory booster, anti-depressant, anti-convulsant

The function of *Udaan Vayu* is related to *dhi*, *dhruti*, *smruti*, *bodhan*. *Prana Vayu* is also functionally important for *Buddhi*, *Chittadhruk*^[24] while *Saadhak Pitta* plays a role in *Buddhi*, *Medha*^[25] aspect. *Mandukparni*, *Yashtimadhu*, *Jatamansi*, *Jyotishmati*, *Guduchi* are useful in *udaan vayu* vitiation. *Vacha*, *Karpur*, *Jeerak*, *Daadim*, *Haritaki*, *Shatavari* can be used in *Prana Vayu* vitiation while *Shatavari*, *Aparaajita*, *Yashtimadhu*, *Kushmaand* can be used in *Saadhak pitta* vitiation.

5. *Rasayan*

Rasayan usage in appropriate condition with specific dosage and regimen gives results which is the base of *Apunarbhav chikitsa* (eliminating a disease without recurrence). *Rasayan* includes an appropriated, optimum nourishment leading to improved biological functions. This can be compared with anti-oxidant, regenerative, immune-modulatory, adaptogenic actions.

Rasayan drugs essentially fulfil two functions- *deepan* and *bruhan*. *Deepan* of *Jatharagni*, *dhatwagni* ensures proper digestion and metabolism of the *Poshak Rasa* which promotes the formation of *prashasta dhaatus*

(quality tissues). They also act on *Srotas* , cleansing the channels which causes better microcirculation of nutrients. *Rasayan* drugs improve the longevity, memory, health, complexion, lustre, strength, youthfulness^[26]. The prescription of *Rasayan* therapy includes diets e.g habit of consuming milk and *ghrita* is called an excellent *rasayan*^[27] by *Acharya Charak*; herbal drugs and formulations and mineral compounds. This diversified concept of *rasayan* is to be applied according to an individual, their age, gender, disease, organ-specific, desired effect as well as *prakriti* as mentioned below

<i>Dhaatu</i>	<i>Drug of choice</i>	<i>Rasayan formulation</i>
<i>Rasa</i>	<i>Guduchi, Vidaari</i>	<i>Kushmanda Rasayan</i>
<i>Rakta</i>	<i>Pippali, Guduchi</i>	<i>Chyawanpraash Avaleha</i>
<i>Maansa</i>	<i>Shatavari, Bala, Naagbala</i>	<i>Naagbala Rasayan, Amrutpraash Ghrita</i>

Meda	<i>Guggul, Haritaki</i>	<i>Navayaas loha, Shilaaajeet</i>
Asthi	<i>Kukkutaanda, Abha</i>	<i>Samudra panchak</i>
Majja	<i>Brahmi, Majja</i>	<i>Braahma Rasayan</i>
Shukra	<i>Kapikacchu, Ashwagandha</i>	<i>Jeevakaadi Ghrita</i>

Disease	Rasayan
<i>Shwas</i>	<i>Vardhamaan Pippali</i>
<i>Kaas</i>	<i>Agastyaharitaki</i>
<i>Kshatksheen</i>	<i>Sarpiguda</i>
<i>Paandu</i>	<i>Yograaj</i>
<i>Vandhyatva</i>	<i>Kalyaanak Ghrita</i>
<i>Jwar</i>	<i>Paatha, Saptaparnaa</i>

Rasayan Karma	Bhasma
<i>Rasayan</i>	<i>Abhrak, Maakshik, Suvarna</i>
<i>Balya</i>	<i>Shilaaajeet, Suvarna, loha, Vanga, Yashad</i>
<i>Bruhan</i>	<i>Raupya, Vanga</i>
<i>Buddhimedhasmrutikar</i>	<i>Suvarna, Loha, Shilajeet</i>
<i>Jaravyaadhiprashaman</i>	<i>Maakshik, Shilajeet</i>
<i>Dhaatu Sthaulyakar</i>	<i>Vanga</i>
<i>Dhaatu Pariposhak</i>	<i>Abhrak</i>

6. Ritu Haritaki

Haritaki as a single drug is used against many diseases where *srotovibandha* (obstruction of channels) is present. It is a rasayan in itself and the main component of many formulations due to its anti-oxidant and restorative effect. It is given with in conjunction with some particular *dravyas* as *Anupaan* in the 6 different seasons mentioned in Ayurved^[28]. This helps in maintaining the physiology of the body due to change in the circadian rhythm of different seasons. In *Varsha ritu*, *vaat dosha* is aggravated with accumulation of *pitta* and decreased *Agni* capacity. *Haritaki* (*Terminalia chebula*) with *Saindhava* salt (*Madhur vipaka, snigdha guna*) enhances *agni* and alleviates *vaat pitta*. In *Sharad ritu*, there is aggravation of *Pitta*. According to *Bhavprakash*, *Haritaki* given with *Sharkara* (sugar) due to its *Madhur vipaka* and *sheet veerya* alleviates *pitta* and prevents its further vitiation. In *Hemant ritu*, the cold environment vitiates the *vaat* with *kapha* accumulation. *Haritaki* with its *katu, tikta rasa* and *ushna virya, laghu guna* along with *Shunthi* (dried ginger) as *Anupaan* mitigates *Kapha – Vaat* and enhances *agni* further. In *Shishir ritu*, the intensity of cold increases thereby increasing *ruksha guna* (dryness) *Haritaki* with *Anupaan* of *Pippali* (*Piper longum*) due to its *katu rasa, ushna veerya, tikshna guna* mitigates *Kapha, snigdha guna* of *pippali* counters the excessive *rukshata* (dryness). In *Vasant ritu*, there is aggravation of *kapha* with decreased strength of *Agni*. *Kashay rasa, laghu, ruksha guna* of *Haritaki* and the *Kashay, ruksha, chedhan* (ablation) of *Madhu* (Honey) mitigates *kapha* and revives *Agni*. *Grishma* ritu marks the accumulation of *vaat* with decreased overall *bala*. *Madhur vipaka, ushna veerya* of *Haritaki* with *Madhur rasa, vipaka, guru, snigdha guna* of *Guda* (jaggery) alleviates *vaat* and increases the *bala*.

7. Ksheer Kalpana (Medicated milk)

This is a type of formulation in which the herbal drug is boiled with milk and water in the ratio of 1:8:32 until the water part gets completely evaporated^[29]. This medicated milk is easily assimilated by the body. Milk in itself acts as *jeevaniya, prenan, balya, bruhan, medhya, deepaniya* due to *Madhur, snigdha guna*.

APPLICATION

Ksheerpaka kalpana are prescribed according to different conditions e.g *Bhallatak Ksheer* for delayed ageing^[30], *Rason Ksheer*^[31] for cardio protection, sciatic pain ; *Gokshur Ksheer*^[32] for constipation, dysuria.

It is suitable for all patient types and age groups.

Better palatability due to *Madhur rasa* leads to better patient compliance with the drug dose regimen. The *Tikshna, ushna* guna of the drug used gets reduced

(e.g. *pippali, lashun*) A larger dose can be given for desired effect since it is boiled with milk and water. With gradual increase in temperature, solubility increases which improves the extraction of relevant active constituents.

IV. DISCUSSION

Ayurvedic nutraceuticals have a three way focus on prevention, cure, post-illness care inclusive of dietetics, therapeutics, and immunity enhancers. The concept of *Rasayan* given in an appropriate manner specific to the disease forms the base of avoidance of its recurrence. Ayurvedic nutraceuticals provides a unique and better drug delivery system through formulations which ensure maximum absorption of active principles. Concept of *Ritu Rasayan* helps to maintain the physiological equilibrium due to seasonal variation thus keeping illness and infections at bay

A holistic, individualistic protocol of nutraceuticals according to the age, disease condition or post convalescent period is available. A fixed dosage for a specific time period with a specific vehicle (*anupaan*) curbs any unwarranted ill effects like in case of bulk promoters freely available in market which have a high content of saturated fatty acids proving detrimental in the long run.

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