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Review Article

Triphala churna: A wonder drug of ayurveda

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Abstract

Maintaining a healthy balance between the internal digestive fire (Jatharagni) and the excretory system (Kostha) is essential to Ayurvedic preventive and therapeutic principles. Triphala is the most well-known Ayurvedic composition, consisting of equal amounts of powdered three fruits. Amalaki (Emblica officinalis), Vibhitaki (Terminalia bellirica), and Haritaki (Terminalia chebula) are all extremely potent Chakshushya Rasayana (visual function rejuvenator). Triphala Churna interacts with all three Doshas (body humors); that is, Haritaki affects the Vata Dosha, Amalaki controls the Pitta Dosha, and Vibhitaki affects the Kapha Dosha. Acharya Sushruta's explanation of Triphala Churna's use in treating eye conditions in Sutra Sthana.In ocular illnesses, Triphala Churna's anti-oxidative and anti-inflammatory effects show a variety of advantageous qualities. Ashru (tears) has been depleted in Shushkakshipaka (dry eye condition), a Vatapitta dominant ocular disorder that causes Paka (eye inflammation). Simply put, this three-fruit mixture is a bowel toner that preserves the intestinal wall's muscular function and contractibility. In addition to its many positive qualities, it is employed as an antioxidant.

Keywords: Triphala, Churna, Ayurvedic Drug, Formulation.

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1. Introduction

Due to its many health benefits, triphala churna, a traditional Ayurvedic treatment, has gained a lot of attention and is known as a "wonder drug." Originating from the combination of three potent fruits pictures are shown in **Figure 1**—Amalaki (Emblica officinalis), Bibhitaki (Terminalia bellirica), and Haritaki (Terminalia chebula)—Triphala is renowned for its many medicinal qualities in addition to its ability to support digestive health. This amazing mixture (as combination ratio is shown in **Table 1**) has been utilized for ages in Ayurvedic medicine and was referenced in ancient writings as a comprehensive remedy for a wide range of illnesses.[1]

The traditional Indian medical system known as Ayurveda, which stresses a holistic approach to health and wellness by taking into account a person's physical, mental, and spiritual aspects, is where Triphala's historical roots lie.[2] According to Ayurvedic practitioners, preserving health and averting illness depend on the three doshas—Pitta, Kapha, and Vata—being in a harmonic balance. As a Rasayana, which means "rejuvenating" or "tonic," triphala is frequently used because of its capacity to increase vitality and encourage longevity. Its formulation, which emphasizes natural remedies made from nature's abundance, incorporates the core principles of Ayurveda.[3]

Amalaki, one of the key components of Triphala, is known for its potent antioxidant properties. It is rich in vitamin C, which supports immune function, aids in skin health, and boosts metabolism. The bioactive compounds present in Amalaki are also believed to have anti-inflammatory and anti-cancer properties that can combat oxidative stress in the body. Bibhitaki complements Amalaki's benefits by effectively regulating metabolism and supporting respiratory health.[4] It is known for its astringent property, which aids in removing excess mucus and phlegm, thereby contributing to optimal respiratory function. Haritaki, revered as the "king of medicines," supports digestive health and balances all three doshas. Its ability to act as a mild laxative helps alleviate constipation and promotes a healthy digestive system, making it a vital component of this powerful blend.

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Understanding the significance of Triphala in promoting digestive wellness leads us to its role in treating various gastrointestinal disorders, including acid reflux, bloating, and irritable bowel syndrome. Studies have indicated that regular consumption of Triphala can enhance gut health by promoting a balanced gut microbiome, aiding in nutrient absorption, and facilitating regular bowel movements.[5] This potent formulation's mild laxative action can relieve constipation while simultaneously ensuring that digestive processes function optimally.[6]

Moreover, beyond its digestive benefits, Triphala is increasingly recognized for its broad-spectrum health claims, including its potential to control blood sugar levels, manage weight, and improve skin health.[7] For diabetic patients, the inclusion of Triphala in the diet might help regulate blood sugar by enhancing insulin sensitivity and reducing glycemic levels, thereby offering a natural approach to diabetes management. Researchers have noted that the gallic acid and ellagic acid found in Bibhitaki play a significant role in these effects, contributing to the formulation's overall therapeutic potential.[8]

The wealth of antioxidants present in Triphala also makes it a formidable ally in combating chronic diseases. Antioxidants are known for their ability to neutralize free radicals, which cause oxidative stress leading to cellular damage and chronic illnesses such as heart disease, cancer, and neurodegenerative disorders.[9] Triphala's combination of powerful phytochemicals exhibits promising anti-cancer properties by inhibiting tumor growth and protecting against DNA damage. Several animal studies have demonstrated Triphala's effectiveness in combating oxidative stress and reducing the risk of cancer through apoptosis, the process of programmed cell death that eliminates damaged cells.[10]

Despite these numerous benefits, it is essential to approach the consumption of Triphala Churna with appropriate caution, as with any herbal remedy. While generally considered safe for most individuals, excessive intake can lead to gastrointestinal upset, including diarrhea and abdominal cramps.[11] Furthermore, individuals on specific medications, particularly blood thinners or those for diabetes, should consult healthcare professionals before incorporating Triphala into their routines, given its potential interactions with certain drugs. Pregnant and breastfeeding individuals should also exercise caution and seek medical guidance prior to use.[12]

2. Ayurvedic Classification

Triphala is a tridoshic rasayana, which means that all patients, including those with Pitta, Kapha, and Vata, can advantage from its energetics. Rasayanas, rendering to Charak, have the ability to boost immunity and strength.[13] Triphala may be castoff for the very young, the ill, and the old due to these characteristics and its tonic energetics. Shukrala, digestive, moderate laxative at normal doses, bowel tonic at little doses, purgative at large doses, carminative, expectorant, antispasmodic, and bronchodilator are additional traditional Ayurvedic classifications that have been applied to the recipe. Moreover, plentiful additional applications are detailed in anecdotal and Ayurvedic medical literature.

Table 1: Ingredients and composition of Triphala churna[13]

S. No.	Name	Latin name	Family	Virya vipaka	Part used	Ratio
1	Amalaki	*Emblica officinalis*	Euphorbiaceae	S*heeta Madhura*	Fruit	1
2	Hartika	*Terminalia chebula*	Combretaceae	*Ushana Madhura*	Fruit	1
3	Vibhitaki	*Terminalia bellirica*	Combretaceae	*Ushana Madhura*	Fruit	1

Figure 1: **a)**: Embilica officinalis, **b**): Terminalia chebula, **c):** Terminalia bellirica

3. Ayurvedic Pharmacology

Ayurvedic pharmacology, or Dravya guna, elucidates the properties of herbs. Triphala's rasa, or flavour, is astringent, bitter, sour, pungent, and sweet; the only taste that isn't encompassed in the recipe is salty. The formula's vipaka, or post digestive impact, is enjoyable, while its virya, or potency and activity, is neutral. All doshas (energetics and mind-body types) are stable by triphala, which has a prabhav, or particular action or trophism, for each dosha and constitution. Amalaki's gunas (qualities) are heavy and dry, but Bhibitaki and Haritaki are both viewed as light and dry.[14]

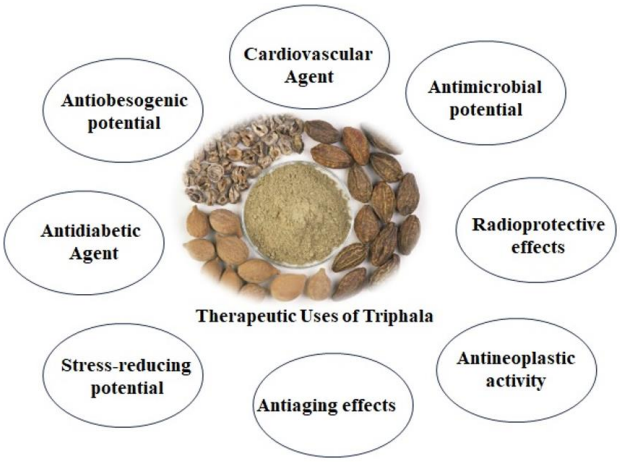

Figure 2: Pictorial details for Therapeutic uses of Triphala

4. Therapeutic Uses

Triphala is an elementary gastrointestinal medication in Ayurvedic medicine; yet, the formulation's three rasayanas, or rejuvenating herbs, are urbane enough to have a diversity of uses. Many probable applications of triphala have also been established by research shown in **Figure 2**, counting its ability to scavenge free radicals, lessen inflammation, boost appetite, reduce gastric hyperacidity, avert dental caries, and have antipyretic, analgesic, antibacterial, antimutagenic, wound-healing, anticariogenic, antistress, adaptogenic, hypoglycemic, anticancer, hepatoprotective, chemoprotective, radioprotective, and chemopreventive effects.[14] Furthermore, triphala may benefit with healthy digestion and absorption of food, inferior blood cholesterol, augment circulation, relax bile ducts, stop immunosenescence, keep the endocrine system in balance, and boost the formation of haemoglobin and red blood cells.[14] Gallic acid, ellagic acid, chebulinic acid, and tannins are the formula's chief ingredients. These stout antioxidants may be partially responsible for the formula's demonstrated immunomodulatory effects.[15,16] A variability of additional bioactive substances, counting flavonoids (including quercetin and luteolin), saponins, anthraquinones, amino acids, fatty acids, and other carbohydrates, are also present in triphala.[16] Additionally, chebulinic acid and other triphala-derived polyphenols are transformed into bioactive metabolites by the human gut flora, which have shown aptitude in vitro in preventing oxidative damage.

5. Triphala in Gastrointestinal Health

Perhaps triphala's most well-known for complete gastrointestinal health. Both aqueous and alcohol-based extracts of triphala have been found in animal experiments to reduce diarrhea.[17] Its high antioxidant concentration is probably partly responsible for the entero-protective properties that triphala also produces. In a mouse model, triphala restored glutathione and phospholipid levels, as well as depleted protein in the intestinal villi of the brush border; at the same time, the mixture reduced intestinal epithelium levels of myeloperoxidase and xanthine oxidase.[18] In rats, Triphala exerted a gastroprotective effect on stress-induced ulcer.[16] According to a human clinical trial that watched into the use of triphala in individuals with gastrointestinal issues, the frequency, yield, and consistency of stool improved while constipation, mucus, abdominal pain, hyperacidity, and flatulence decreased. [19] Triphala's more flavonoid content and antioxidant properties were originate to be responsible for the treatment's ability to decrease colitis in a mouse model.[20]

6. Stress-reducing Potential of Triphala

Anxiety and other stress-related diseases are the chief causes of adult disability globally.[18] Stress, a state of discord brought on by a perceived threat and offset by an adaptive reaction to restore homeostasis, is linked to a number of chronic illnesses. Triphala has been confirmed in animal experiments to provide protection against cold-induced stress and to opposite the behavioural and biochemical changes brought on by stress, including elevated corticosterone and lipid peroxidation.[21] Triphala also prevented noise-induced stress.[22] It was proposed that the biological mechanism is linked to the antioxidant characteristics of triphala, which abridged the noise-induced metabolic alterations in rats via mediating the antioxidant and cell-mediated immune response.[23,24] Due to the enormous levels of stress that modern humans endure, adaptogenic therapies are becoming increasingly necessary in clinical settings.

7. Anti-obesogenic and Antidiabetic Potential of Triphala

Eating habits are commonly deregulated in developed nations. Triphala has been publicized in studies to have therapeutic aptitude for reducing body fat and weight. In an experimental experiment, mice who were made obese by food were assumed triphala for ten weeks.[25] Treatment with triphala reduced energy intake, body weight, and body fat percentage. In contrast to the control group, triphala also abridged the experimental group's levels of triglycerides, low-density lipoprotein cholesterol, and total cholesterol. Human participants getting triphala treatment lost 5 kg in a 12 week, double-blind, randomized, placebo-controlled study as compared to the placebo control group.[26] The treated

participants had lesser mean fasting blood sugar and fasting serum insulin levels than the control group. More treatment replacements are required in light of the worldwide obesity pandemic in order to lessen the associated healthcare burden. Triphala has hypoglycemic properties. Particularly after consuming carbs, patients with type-2 diabetes are likely to have elevated postprandial blood glucose levels. Alpha-amylase and alpha-glucosidase, two digestive enzymes, break down carbs, and cells' capacity to absorb glucose from the blood is diminished, which leads to elevated blood glucose.

8. Triphala and Cardiovascular Health

One of the chief reasons of death and morbidity in the world is cardiovascular disease, and hypercholesteremia is a significant risk factor. Triphala's hypercholesteremic effects have been recognized in animal research. Triphala decreased the levels of free fatty acids, low-density lipoprotein, very low-density lipoprotein, and total cholesterol in rats given an atherogenic diet for 48 days.[27] One of the herbs in triphala, haritaki, caused hypolipidemic effects in the herb-treated group of rats in added study that used rats given an atherogenic diet. The herb-treated group showed higher levels of high-density lipoprotein cholesterol and lower levels of total cholesterol, triglycerides, and total protein when likened to the control group.[27]

9. Antimicrobial Potential of Triphala

Since the overdoing of antibiotics has resulted in widespread drug resistance, it is now crucial for clinical researchers to find highly operative alternative and complementary antimicrobial medicines. Both ethanol extracts (14%) and water decoctions (12%) of triphala have revealed antibacterial activity in vitro against bacterial isolates from patients infected with the human immunodeficiency virus; the ethanol extracts were found to have a higher in vitro antimicrobial action against these species than the aqueous extracts, which may indicate that the aromatic antibiotic compounds are less soluble.

10. Radioprotective Effects of Triphala

According to research, triphala may aid in averting and retrogressive mutagenesis and DNA damage.[28] Since DNA damage is frequently the first step in the expansion of cancer, it is vital to avoid it. In vitro and animal model studies have demonstrated the efficacy of triphala in stopping mutagenesis brought on by radiation and chemical damage.[29-30] Triphala was revealed to remove reactive oxygen species in cells subjected to bleomycin or ionizing X-rays, which both cause DNA strand breaks by producing reactive oxygen species, in an in-vitro research.[31] Triphala also prevented plasmid DNA strand breaks produced by gamma radiation in vitro. In rat liver microsomes, the rasayana formulation also prevented radiation-induced lipid peroxidation and showed promise in scavenging free radicals like superoxide. Crucially, the scavenging action of free radicals was credited with the high concentrations of phenolic substances, including gallic acid.[32]

11. Antineoplastic Activity of Triphala

Triphala has being deliberate as a likely anti-cancer drug. Numerous investigations in this area have demonstrated that triphala has an antitumor effect on a diversity of cancer cell lines, including those from the breast, prostate, colon, and pancreatic.[33,34] Cell line data designates that triphala modulates normal and malignant cell lines differently. In cancer cells, triphala causes cytotoxicity, as seen by increases in intracellular reactive oxygen species, but not in healthy cells. Apoptosis induction may have mediated decreased tumour growth, according to excised tumour tissue from Triphala-fed mice as compared to controls.[35]

12. Antiaging effects of Triphala

In vitro, triphala extract had very protective antiaging properties on human skin cells. By promoting the genes that synthesize collagen-1 and elastin as well as the antioxidant genes that produce the cellular antioxidant SOD-2, triphala extract influences the gene expression of human skin cells.[36,37] Because it contains beneficial phytochemicals, triphala extract has been shown to suppress the formation of melanin and hyperpigmentation. Furthermore, when hydrogen peroxide caused cell damage and senescence, triphala extract demonstrated strong free radical scavenging ability.[38,39]

13. Discussion

The growing interest in integrative medicine has revitalized public attention toward traditional herbal formulations, particularly in Ayurveda. Triphala Churna, a quintessential Ayurvedic polyherbal medicine, has come under scrutiny for its diverse therapeutic benefits. Triphala, meaning "three fruits," is a formulation consisting of the dried fruits of three herbs: Emblica officinalis (Amalaki), Terminalia bellerica (Bibhitaki), and Terminalia chebula (Haritaki). These components are not only celebrated for their individual health benefits but also for their synergistic effects when combined.[40] Scientist all over the globe emphasizes that these herbs have been utilized for over a thousand years in Ayurveda to enhance digestive health, boost immunity, and promote longevity. The historical texts, such as the Charaka Samhita and the Sushruta Samhita, document the claims of Triphala’s ability to rejuvenate the body and mind while preventing the onset of diseases. One of the most well-documented benefits of Triphala is its role in gastrointestinal health. Scientific studies have shown that Triphala possesses laxative properties, which effectively alleviate constipation and improve overall digestive function.[41] Animal studies indicate that Triphala has protective effects on the intestinal lining, which may reduce the incidence of ulcers and inflammatory bowel diseases. Furthermore, the antioxidant

properties of Triphala, due to high tannin and polyphenol content, contribute to its gastroprotective effects.[42-47]

The anti-diabetic potential of Triphala has gained significant attention within the scientific community. Research demonstrates that Triphala can modulate blood sugar levels by inhibiting digestive enzymes such as alpha-amylase and alpha-glucosidase, which are responsible for breaking down carbohydrates.[48] This action not only helps control postprandial blood glucose levels but also may contribute to weight loss in overweight individuals. In clinical trials, participants who supplemented with Triphala experienced notable reductions in body weight and improvements in lipid profiles.[49]

Another facet of Triphala's therapeutic potential lies in its anti-inflammatory properties. Valiathan highlights that Triphala can interfere with the inflammatory pathways, thereby reducing the levels of pro-inflammatory cytokines in the body. This mechanism is particularly useful for conditions characterized by chronic inflammation, such as arthritis and asthma.[50] The antioxidant capability of Triphala also aids in fighting oxidative stress, which is linked to various degenerative diseases. In vitro studies have shown that Triphala can scavenge free radicals and neutralize reactive oxygen species, thereby protecting against cellular damage.[51]

Valiathan's work also elucidates the antimicrobial properties of Triphala. The formulation has demonstrated significant antibacterial activity against various pathogens, including antibiotic-resistant strains. Clinical trials have shown that Triphala mouthwash can effectively reduce dental plaque and gingivitis, benefitting oral health without the harsh side effects associated with conventional antiseptics. This highlights Triphala's potential as a viable alternative in dental care.[52]

14. Conclusion

In conclusion, an ayurvedic medicine is triphala churna, which combines the health advantages of three highly appreciated fruits. As a potent antioxidant and anti-inflammatory, triphala also supports digestive health, demonstrating the effectiveness of natural therapies. The numerous health benefits linked to this ancient composition are still being investigated and verified by science, but its historical relevance and tried-and-true uses solidify its position as a mainstay of Ayurvedic medicine. The combination of traditional knowledge and modern medical techniques may offer a solution to attain optimal health and well-being, which makes triphala churna an incredibly amazing natural cure.

15. Future Aspect

Triphala is not only a valuable component of traditional Ayurvedic medicine but also an emerging subject of scientific inquiry in the context of modern health challenges. While substantial evidence supports its therapeutic benefits, further rigorous clinical trials are necessary to substantiate these claims and explore the full range of its applications. The integration of Ayurveda with contemporary medical research could pave the way for new, effective interventions that combine ancient wisdom with modern science, ultimately enhancing patient care and health outcomes.

16. Declaration

Authors mutually declare that there is no conflict of interest. In the article images are taken from google images for academic purpose only.

17. Source of Funding

None

18. Conflict of Interest

None.

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