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A REVIEW ON TRIPHALA: THE MIRACLE IN THE WORLD OF AYURVEDIC MEDICINE

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ABSTRACT

Tri- (three) phala-(fruit-Tannins, gallic acid, ellagic acid, and chebulinic acid, which are potent antioxidants) is one of the most important ayurvedic preparation made up from an equal proportion of Indian herbal fruits -*Emblica officinalis* (Amla), *Terminalia bellerica* (Baheda), *Terminalia chebula* (Hirada). It acts as a Tridoshic rasayana which has a balanced and renewable effect on the three constitutional elements of human life. Triphala is rich in antioxidants, has antibacterial, antiviral, and anticancer properties. It also has anti-inflammatory, antipyretic, analgesic, antimutagenic, anti-aging, anti-diabetic, anti obesogenic, hypoglycemic activity and many other properties. It is also used to treat cataracts and is useful in treating Acquired Immunodeficiency Syndrome (AIDS). Triphala is rich in polyphenols, gallic acid, ellagic acid chebulic acid, and flavonoids. Rich in vitamin C. According to Ayurvedic Science it has a beneficial effect on all three doshas-vata, pitta and kapha. It is also a combination of both nutritional and cleansing functions of the liver and blood. High vitamin C, the presence of linoleic oil and other essential nutrients, makes the composition look like a tonic. Triphala is very beneficial; making it one of the protective effects against X-radiation and bleomycin, both of which generate DNA strand breaks is the most important herbal remedies in the medicinal world. This review paper focuses on Triphala's potential as a therapeutic agent against various diseases.

KEYWORDS

Triphala, Ayurveda, Rasayana, Phenolic Content, Antioxidant, Anti-diabetes

1.INTRODUCTION:



Triphala Fruit

TRIPHALA:

- 1) **Rasa / Taste:** Main-astringent Delicious, sour, spicy, Spicy
- 2) **Virya / Power:** Neutral
- 3) **Vipaka/Post digestive action:** Sweet
- 4) **Prabhav / Special action:** measure all three doshas
- 5) **Gunas / Attributes:** Light and dry
- 6) **Chemical composition:** Saponins, terpenoids, tannins, flavonoids, Phenolic acid, etc.

Other major compositions of Triphala:

Methyl gallate,
Gallic acid,
Phyllembelin acid,
Ellagic acid,
Corilagin,
Chebulic acid,
Chebulinic acid,
Chebulagic acid,
Tannic acid.

Triphala is a well-known and very useful drug formulation from Ayurveda science. Ayurveda (Ayu-life veda-science) is the science of healthy living. Triphala is used as a rasayana tree according to the Indian medicine system. Triphala (tri-three phala-fruit) is a combination of three equal fruits of three plants –

- 1) Haritaki- Terminalia chebula Family- Combretaceae.
- 2) Bibhitaki- Terminalia bellerica Family- Combretaceae.
- 3) Aamalaki- Emblica officinalis Family- Euphorbiaceae

While play is crucial for a child's development, it is also beneficial for people of all ages. Triphala balances all tridosha i.e. vata, pitta, kapha. Triphala has antioxidant, anti-inflammatory and antimicrobial properties. According to Charak samhita, a triphala with honey and ghee, which takes this combination daily, can make a person live for a hundred years and not get diseases with aging. According to Sushrut samhita, it is useful for wounds and ulcers. In many therapies, this formula is used as an antiseptic agent and as a rejuvenator. It contains chemical elements of phenolics such as gallic acid, tannic acid, syringic acid, chebulinic acid and epicatechin with vitamin C. It has a positive effect on GIT and can also reduce stress, control diabetes, promote weight loss by reducing cholesterol and the many benefits it has. It has many applications in various fields such as anti-inflammatory, Anti-viral, anti-bacterial,

immunomodulating, Anti neoplastic, chemoprotective. radioprotective effects. Also contains antianemic, antidiabetic, hepatoprotective, antiaging, hypocholesterolemic, colon cleanser. Herbal remedies have minimal side effects as they interact with specific chemical receptors in the body. There is a statement made in India. 'If you don't have a mother don't worry, you have Triphala.' That means just as a mother protects her baby, triphala is beneficial and protects human life. Western medicine and Ayurveda both allow health and disease both starting from the gut or GIT. Triphala is useful for digestion, absorption, elimination and regeneration.

1.1. AYURVEDIC PHARMACOLOGY AND CLASSIFICATION:

Sr. No.	Points	Terminalia chebula	Terminalia bellerica	Embolica officinalis
1)	Similar words	Hirada, black/chebulic myrobalan	Baheda, Belliric myrobalan	Amla, Indian gooseberry
2)	Rasa/Taste	Main-astringent. Sweet, sour, pungent, bitter,	Astringent	Main-amlasour Sweet, pungent, bitter, astringent
3)	Virya /potency	Ushna or hot potency	Ushna or hot potency	Sita or cold potency
4)	Vipaka/Post Digestive effect	Sweet	Sweet	Sweet
5)	Prabhav / Special Action	Tridosha hara i.e.vata, pitta, kapha	Tridosha hara i.e.vata, pitta, kapha	Tridosha hara i.e.vata, pitta, kapha
6)	Gunash / Qualities	Light and dry	Heavy and dry	Light and dry
7)	Chemical composition	Tannin, chebulic acid, gallic acid, corilagin	Tannin, B-sitosterol, gallic acid, tannic acid, ellagic acid	Gallic acid, tannic acid, albumin, vitamin C



TRIPHALA

2. DIFFERENT APPLICATION OF TRIPHALA:

2.1 Analgesic, Antipyretic and Ulcerogenic activity:

There is a huge increase in the use of anti-inflammatory drugs in modern life with analgesic and antipyretic effects and adverse effects on gastrointestinal health. Triphala shows both of these properties without harming the health of the stomach. When there are problems related to the digestive process, prokinetic drugs are used. Prokinetic drugs act by increasing muscle contraction and betterment in gastric health. Triphala as an alternative to a prokinetic drug that does not have a long-term effect because it is involved in the removal of gastric waste such as older cell of GI tract, undigested parts of food. The estimated anti-wound activity of NR-ANX-C (a polyherbal formulation) made with extracts from *Withania somnifera*, *Camellia sinensis*, *Ocimum sanctum*, *shilajit* and Triphala) is considered to be cytoprotective, Anti secretory and antioxidant properties. NR-ANX -C is responsible for its wound-fighting function. NR-ANX-C is therefore potent and can be used as an adjuvant in the treatment of stomach ulcers. Triphala formulations is rich in tannins which have effects like protein precipitation and vasoconstriction which can be beneficial in prevention of ulcer development. The unequal structure of the triphala with an increased number of *Terminalia bellerica* and *Embllica officinalis* provides important protection against stomach ulcers compared to the equivalent structure.

2.2. Antidiabetic Potential activity of Triphala:

Triphala shows a hypoglycemic effect. Type II Diabetes i.e. Diabetes mellitus is one of the serious and major diseases which kills many people throughout the world. Patients having high blood glucose levels especially after consuming carbohydrates. This high level is because of breakdown of carbohydrates by enzymes alpha-amylase and alpha- glucosidase into glucose and there is reduced potential of cells to take that glucose from that blood. Past studies show that Triphala has inhibitory action against pancreatic glycolytic enzymes, namely alpha-amylase and alpha-glucosidase, thereby reducing the blood glucose level.

A clinical study of non-insulin dependent diabetes mellitus patient shows that dose of 5g of Triphala powder for 45 days significantly reduced blood glucose level. Tannins present in Triphala found to effectively prevent protein glycation in vitro. Tannins like gallic acid and ellagic acid shows beneficial effect in diabetic neuropathy, nephropathy and cardiomyopathy like complications. Their Antioxidant activity correlates with the antidiabetic property and is advantageous in relieving the complications of diabetes mellitus. The extracts of Triphala are found to inhibit lipid peroxide formation and to rummage hydroxyl and superoxide radicals in vitro.⁹

2.3. Anti-obesogenic activity of Triphala:

Obesity becomes a major risk factor for cardiovascular disease and Diabetes mellitus. The studies in the past few years demonstrated the potential of Triphala in reduction of body fat and ultimately weight loss. According to a 2012 animal study, alternative therapies in Health and Medicine, mice fed a high fat diet and prescribed a daily dose of Triphala had lower body weight, body Fat, total cholesterol, triglycerides and bad LDL cholesterol than the untreated mice which are also on the same diet. Treated mice had experienced an increase in good HDL cholesterol along with betterment in their liver enzymes and oral glucose tolerance. It suggests that Triphala may help in controlling type-2 diabetes.

2.4. Triphala in Stomach Health:

Triphala acts as a traditional rejuvenator used in a variety of stomach ailments including intestinal inflammation. It has antioxidant properties that reduce damage due to oxidative stress. The effect of free radical extraction due to the presence of Gallic acid and ellagic acid. The formulation of the Triphala solution protects against intestinal damage by improving the integrity of the epithelial cell of strong connections and restoring the brush-like border membrane and reducing the level of myeloperoxidase and xanthine oxidase in the gut mucosa. This effect may be due to flavonoids, ellagic and gallic acid in Triphala. This was researched to assess the protective effect of enter formation of triphala on the damage caused by methotrexate in mice.¹² Triphala helps in improving peristalsis and also improves the movement of intestines to remove waste. It was studied in mice that triphala has a very positive effect on constipation. It is known to soften and calms the intestinal wall and improves bowel movements. It also helps the growth of beneficial intestinal bacteria and prevents the growth of harmful bacteria. This balance of bacteria can help improve overall intestinal health. It naturally cleanses the toxic build up (Ama in Ayurveda) which accumulates in the digestive tract. The cleansing action allows more absorption of nutrients in the blood.

2.5. Triphala in Cardiovascular Health:

Hypercholesterolemia is one of the most dangerous forms of coronary heart disease. Experimental studies show that triphala has hypolipidemic effects on hypercholesteremic mice induced by experiments. The usual dose of Triphala has been shown to reduce the risk of heart disease. The anti-inflammatory effect of Triphala reduces narrowing of the arteries and helps in controlling high blood pressure. No toxicity or adverse drug reactions are observed at a dose of 2.5 g twice a day in a patient for a whole month. Haritaki, one of the ingredients in triphala, helps purify the blood and strengthens the heart muscle.

2.6. Antimicrobial action of Triphala:

Triphala mashi, one of the formulations of Triphala, has non-specific antimicrobial activity. The aqueous and ethanolic extract of triphala has broad spectrum activity against all microbes including HIV. It prevents growth of all gram positive and gram negative bacteria. Ointment formulation of Triphala shows wound healing properties and significant reduction in bacterial count when used on bacterial infected rats. This ointment showed antibacterial, wound healing & a strong antioxidant activity for the proper care of infected wounds. Triphala also has potential to eradicate pathogens in vitro. In one case study, it was observed that triphala possess strong antibacterial effects against *Staphylococcus epidermidis* and *S. aureus* and having moderate effect against *Proteus vulgaris*, *Pseudomonas aeruginosa* and *Salmonella typhi*. In addition, it also possesses activity against fungus like *Aspergillus* species. The aqueous extract of fresh fruit is more effective than dry fruit. Triphala, traditionally used in ayurvedic medicine, has a potential in oral care. In a clinical trial, it is found that Triphala reduces the presence of oral bacteria, gingivitis and oral plaque in human beings. There are some oral pathogens which are most difficult to eliminate. *Enterococcus faecalis* is one of them. Triphala is effective against this pathogen.

2.7. Anti-ageing activity of Triphala:

Triphala works as Rasayana; it enhances wellness, promotes longevity and reverses aging. It prevents dryness and degeneration by improving blood. Extract of Triphala possesses highly protective anti-aging effects on human skin cells in vitro. It affects gene expression and stimulates collagen-1 and elastin-synthesizing genes of human skin cells. It increases cellular antioxidants and decreases hyperpigmentation. Antioxidant property of Triphala acts as a skin protective ingredient by re-building skin structural proteins and stimulates selective youth genes and provides proper hydration to the skin.

Triphala works as a powerful tonic for hair by stimulating the follicles and roots and encourages hair growth. Acharya Charaka said that with the regular consumption of Triphala Churna for one year, one can live for one hundred years, free from ageing and diseases.

2.8. Antioxidant Activity of Triphala:

Triphala's antioxidant and radioactive ability is derived from polyphenols, which reduce oxidative stress by converting active oxygen-free radicals into inactive products. Tannin content reported 21% in Terminalia belerica, 30 -32% in Terminalia Chebula, 28% of Emblica officinalis. Tannins, phenols, lignans and flavonoids are reported to have important antioxidant properties. Triphala enhances the activity of antioxidant enzymes such as superoxide dismutase, catalase, glutathione-S-transferase, glutathione peroxidase. By this action, Triphala prevents oxidative stress caused by cold stress. The superoxide radical scavenging activity of Triphala using the activity of xanthine and xanthine oxidase, has shown that triphala also has the potential to inhibit uric formation acid. Antioxidant activity of triphala has the potential to help maintain eye health. Emblica officinalis, one of the ingredients of triphala, is a rich source of vitamin C and has excellent antioxidant activity. It counteracts the effects of hepatotoxic and toxic xenoxins due to its antioxidant properties.

2.9. Other uses of Triphala:

The Triphala ghrita, one of the formulations of Triphala, has great advantages against cataract. It provides protection against delaying the onset and progression of cataract. This activity may be due to the antioxidant effect of gallic acid, ellagic acid and ascorbic acid. It also has an immunomodulating function. This function is because of flavonoids, alkaloids, tannins, saponin glycosides and phenolic compounds. Triphala is also used as an anti-cancer drug. It has a cytotoxic effect on the lines of cancer cells. The suppression of cancer cell growth may be due to the main component of Triphala-gallic acid. The polyphenolic compounds separated from chloroform and acetone extracts from Triphala have been tested for antimutagenic properties. It shows radio-protective effect in mice when exposed to gamma radiation. Triphala has significant immune stimulatory effects on cellular immune responses, particularly cytotoxic T cells and natural killer cells. An increase in the total number of these cells may provide a new adjuvant treatment for people with HIV / AIDS related to immune development. It helps to improve our appetite and ensures good digestion. Increases RBC value and Hb content and removes unnecessary fat. It controls the intestines and is considered as safe as food even if taken daily. It is a tonic, cleanser and cleanser of blood. It is useful for headaches, constipation, digestive health, gout, arthritis, dental problems, etc.

CONCLUSION:

Triphala is a very powerful polyherbal compound used in various therapies to maintain homeostasis in the body and to prevent and treat various diseases. There are many scientific studies that have reported confirmation based on the evidence for the various uses of Triphala. Triphala is effective in treating many ailments. It has various effects such as anticancer, antidiabetic, antimicrobial, and anti-inflammatory properties. It is also used in the treatment of AIDS, cataracts, depression, arthritis and many more. It acts as a rasayana and has a measuring effect on all three doshas-vata, pitta and kapha. According to Acharya Charaka, with Triphala used throughout the year every day, a person can live for a hundred years without various diseases and aging. Hence, Triphala is also known as "the nectar of life".

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