Triphala

INTRODUCTION:

Triphala is well known polyherbal formulation in the Indian systems of medicine. Triphala churna is a powdered preparation of three myrobalan fruits, Emblica officinalis Gaertn (Amla), Terminalia chebula Retz (Haritaki) and Terminalia belerica Roxb (Bibhitaki) in equal proportions. This fruit formulation has been extensively used in the traditional Indian system of medicine, Ayurveda for the treatment of several disorders of the gastrointestinal and cardiovascular system [1][2]

(https://www.theayurvedaexperience.com/blog/triphala-benefits-side-effects-uses/)

It can be used by all people irrespective of their age. It has various applications in medical field like laxative, eye rejuvenator, anti inflammatory, antiviral and so on. It is also effective in headache, dyspepsia, ascites, and leucorrhea, also used as a blood purifier and possess anti- inflammatory, analgesic, antiarthritic, hypoglycemic and anti -aging properties. Triphala is claimed to have antiviral and antibacterial effect.

Triphala is prescribed for fatigue, assimilation, reduces oxidative stress and infectious diseases such as tuberculosis, pneumonia, AIDS, periodontal diseases etc . Triphala is reported to reduce considerably the damage due to oxidative stress. Triphala is rich in gallic acid, vitamin C, ellagic acid, chebulic acid, bellaricanin, beta – sitosterol and flavanoids[3]

MAJOR CHEMICAL CONSTITUENTS: [1]

Triphala contains major four phenolics chemical constituents such as gallic acid, tannic acid, syringic acid and epicatechin along with ascorbic acid. *P. emblica* contained ascorbic acid, gallic acid, *T. bellirica* contained gallic acid, tannic acid and ascorbic acid, while *T. chebula* contained gallic acid, tannic acid, syringic acid and epicatechin and ascorbic acid.

PROPERTIES AND USES:[5][4]

- Anti-inflammatory properties
- Anti- cancer properties
- Fat burner
- Protection against dental problems and cavities
- Natural laxative
- Skin protectant

(https://www.medicalnewstoday.com/articles/326547.php#oral-health)

- Anti- Diabetic
- Strengthening immune system
- Treating Gastro instestinal issues, pneumonia, AIDS
- Anti-oxidant
- Analgesic

SIDE EFFECTS OF EXCESS CONSUMPTION:[5][6]

- Due to its natural laxative effects, it may cause diarrhea and abdominal discomfort, especially in high doses.
- Hypoglycemia
- Pregnancy complication

DOSAGE:

The general dosage of Triphala Powder is as follows.	
Infants (Up To 6 Months)	GENERALLY NOT RECOMMENDED
Infants (6 -12 Months)	500 mg * or 1 gram **
Toddler (Age: 1 – 3 yrs)	750 mg * or 1.5 grams **
Preschooler (3 – 5 yrs)	1000 mg * or 2 grams **
Grade-schooler (5 – 12 yrs)	1500 mg * or 3 grams **
Teenager (13 -19 yrs)	2 grams * or 4 grams **
Adults (19 to 60 yrs)	3 grams * or 6 grams **
Geriatric (above 60 yrs)	3 grams * or 6 grams **
Pregnancy	NOT RECOMMENDED
Lactation	3 grams * or 6 grams **
Maximum Possible Dosage	12 grams Per Day (in divided doses)
* Twice a day with water or honey After Food	
** Once a day at night with water or honey	

(https://www.ayurtimes.com/triphala-benefits-uses-dosage-side-effects/)

RESEARCH:

1. This research helps to study the skin protective effects of Triphala extract (TE) and its mechanistic action on skin cells *in vitro*. Gallic acid, ellagic acid, and chebulinic acid were deduced by LC-MS as the major constituents of TE. The identified key compounds were docked with skin-related proteins to predict their binding affinity. The IC_{50} values for TE on human dermal fibroblasts (HDF) and human keratinocytes (HaCaT) were 204.90 ± 7.6 and 239.13 ± 4.3 µg/mL respectively. The antioxidant capacity of TE was 481.33 ± 1.5 mM Trolox equivalents in HaCaT cells. Triphala extract inhibited hydrogen

peroxide (H_2O_2) induced RBC haemolysis (IC50 64.95 μg/mL), nitric oxide production by 48.62 ± 2.2%, and showed high reducing power activity. TE also rescued HDF from H_2O_2-induced damage; inhibited H_2O_2 induced cellular senescence and protected HDF from DNA damage. TE increased collagen-I, involucrin and filaggrin synthesis by 70.72 ± 2.3%, 67.61 ± 2.1% and 51.91 ± 3.5% in HDF or HaCaT cells respectively. TE also exhibited anti-tyrosinase and melanin inhibition properties in a dose-dependent manner. TE increased the mRNA expression of collagen-I, elastin, superoxide dismutase (SOD-2), aquaporin-3 (AQP-3), filaggrin, involucrin, transglutaminase in HDF or HaCaT cells, and decreased the mRNA levels of tyrosinase in B16F10 cells. Thus, Triphala exhibits protective benefits on skin cells *in vitro* and can be used as a potential ingredient in skin care formulations.[7]

1. Triphala churna (THL) is a combination of three fruits that has been used for many years in India for the treatment of various diseases. There are now reports which indicate that THL can inhibit growth of malignant tumors in animals. However, the mechanism by which THL mediates its anti-tumor actions are stil being explored. Because vascular endothelial growth factor-A (VEGF) induced angiogenesis plays a critical role in the pathogenesis of cancer, therefore this study investigated tumor inhibitory effects of THL and its active constituents are through suppression of VEGF actions. THE results herein report that THL and chebulinic (CI) present in THL can significantly and specificially inhibit VEGF induced angiogenesis by suppressing VEGF receptor-2 (VEGFR-2) phosphorylation. These results are of clinical significance as these inexpensive and non-toxic natural products can be used for the prevention and treatment of diseases where VEGF induced angiogenesis has an important role.[2]
2. This study was developed to improve the immunity of HIV/AIDS positive people using Triphala, a herbal formulation in a clinical phase I study. All volunteers took Triphala, 3 capsules per day for 2 weeks. Complete physical examination, routine laboratory analysis, and immunological studies were performed before ingestion and after initial meeting for 4 consecutive weeks. Triphala demonstrated significant immunostimulatory effects on cytotoxic T cells (CD3−CD8+) and natural killer cells (CD16+CD56+). Both of them increased significantly when compared with those of the control samples. However, no significant change in cytokine secretion was detected. All volunteers were healthy and showed no adverse effects throughout the duration of the study. This proves that Triphala has significant immunostimulatory effects on cellular immune response, especially cytotoxic T cells and natural killer cells. Increase in the absolute number of these cells may provide a novel adjuvant therapy for HIV/AIDS positive people in terms of immunological improvement.[8]

PRECAUTION AND WARNING:[4]

- Triphala is not recommended for pregnant or lactating women and should not be administered to children
- Indian gooseberry, one of the main components of Triphala, that may increase the risk of bleeding and bruising in certain people and may not be safe for those with bleeding disorders.

INTERACTION WITH MEDICATION:[4][6][9]

- Triphala might interact with or decrease the effectiveness of certain medications, including blood thinners like Warfarin

- Triphala was found to inhibit the activity of cytochrome P450, a family of enzymes found in liver cells. Rat studies show that this activity of triphala can interfere with certain drugs
- One study states that a patient given a herbal mixture containing triphala churna (along with other herbal ingredients) developed an episode of depression. Symptoms like low mood, reduced energy, and sleep disturbances followed. These symptoms improved once the patient stopped taking the herbal medication.
- Triphala should be avoided if one is consuming following medications:
    - Anti-arrhythmia drugs like quinidine
    - Anticonvulsants like Tegretol (carbamazepine) and Trileptal (oxcarbazepine)
    - Antifungal drugs like Nizoral (ketoconazole) and Vfend (voriconazole)
    - Antipsychotic drugs like Orap (pimozide)
    - Atypical antidepressants like nefazodone
    - Benzodiazepine sedatives like Klonopin (clonazepam) and Halcion (triazolam)
    - HIV drugs like Reyataz (atazanavir) and Crixivan (indinavir)
    - Immune-suppressive drugs like Sandimmune (cyclosporine)
    - Macrolide antibiotics like clarithromycin and telithromycin
    - Migraine medications like Ergomar (ergotamine)
    - Opioid painkillers like Duragesic (fentanyl) and alfentanil
    - Rifampin-based drugs used to treat tuberculosis

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