

MYROBALAN: A REVIEW ON ITS ETHNOMEDICINAL IMPORTANCE WITH SPECIAL REFERENCE TO POSITIVE HEALTH & NATURAL REMEDIES OF VIRAL DISEASES

Mousumi Banerjee*

Faculty of Post Graduate Studies, Department of Botany, Scottish Church College, Kolkata, India.

Corresponding Author: Mousumi Banerjee

Faculty of Post Graduate Studies, Department of Botany, Scottish Church College, Kolkata, India.

Article Received on 16/10/2020

Article Revised on 06/11/2020

Article Accepted on 27/11/2020

ABSTRACT

Taking *rasayana* or positive health therapy is helpful to increase the immunity of the person to keep him away from disease, can cure disease and prevents the re-occurrence. These are Immunostimulants, rejuvenators and nutritional supplements having strong antioxidant activity; they act on the immune system and positively affect the response of the body towards infection. Positive health keeps us away from diseases. This article aims to highlight on the ethno pharmacological, pharmacological and immunomodulatory activities of *T. chebula* including its effects on restoring positive health and treatment of viral diseases.

KEYWORDS: Positive health, *rasayana*, Traditional knowledge, Ethnomedicine, Immunostimulants, *Myrobalan*, Antioxidant activity, Antiviral activity, Pharmacological activities.

INTRODUCTION

Viruses have been posing considerable threat to all over the world. During recent pandemic the mortality and morbidity are highest and imposing tremendous pressures on health system. The inadequacy of effective vaccines and lack of proper medication urge upon search of alternative natural therapies based on traditional knowledge or Ethnomedicine. The ethnomedicine, an age-old therapeutic system which is traditionally practiced among folk- and different tribal communities, has always been in India the matrix of codified traditional systems such as Ayurveda. Many important medicines of modern age are getting discovered and developed based on the knowledge of Ethnomedicine, and Ethnomedicine has been receiving appreciation of modern scientists (Mukherjee A. and Banerjee M., 2019).

It is vital that our immune system should keep in good working order if we want to stay protected. Properly functioning immune system helps us to stay healthy. Immunostimulants can act through innate as well as adaptive immune responses in healthy person and enhance body's resistance to infection and they are nonspecific. Immunostimulants are expected to serve as prophylactic and promoter agents. In a patient who does not have the ability to respond normally to an infection due to an impaired or weakened immune system, immunostimulants act as immunotherapeutic agents. The plant discussed here has immunostimulant properties,

can act as immunotherapeutic agent and can serve as a potential source for drugs for various diseases. A variety of such ethnomedicinal remedies are in wide traditional use for getting rid of different infectious diseases including viral infections in respiratory system. Thus traditional knowledge can be used for prevention and treatment of different types of viral diseases.

Positive health or *rasayana* pharmacological and, Myrobalan including means an improved state of nourishment, which in turn upholds increased immunity and youthfulness. Re-establishes body's equilibrium and provide resistance against infection. They also possess the restorative and rejuvenating powers as they act on the immune system and positively affect the response of the body towards infection. This article aims to highlight on the ethno pharmacological, pharmacological and immunomodulatory activities of Myrobalan including its effects on restoring positive health and treatment of viral diseases. All these are discussed here in order to call attention to This herbal remedy as a novel alternative of modern medicine.

Vernacular names

English: *Myrobalan*

Sanskrit: Haritaki

Hindi: Haritaki

Classification

Kingdom: Plantae
 Division: Magnoliophyta
 Class: Magnoliopsida
 Order: Myrtales
 Family: Combretaceae
 Genus: *Terminalia*
 Species: *Chebula*

Positive Health**Ethnopharmacology**

Probably Myrobalan is one of the biggest gifts to humanity, which can rapidly heal numerous diseases and ailments. For thousands of years, Ayurvedic practitioners have called 'Haritaki' the 'king of medicines'. They believe it exists to destroy all diseases, eliminates all waste from the body, and promote tissue growth and health. In the vedic tradition, the word 'roga' not just implies to physical diseases, but also extends to all sufferings that make us powerless, and thus out-of-integrity – physically, mentally, consciously. This wonder of nature removes toxins from human body in a natural way and makes it more energetic. The Myrobalan or *T. chebulais* the wonder drug for brain. It also purifies the blood and removes fat residues from the arteries and veins. It heals diabetes, hypertension and heart problems. It helps the vision to become sharp. The gargle with the decoction of Myrobalan Powder soothes the throat and gum. It is a digestive aid. It improves digestion, promotes the absorption of nutrients, and regulates colon function. It is very much beneficial for pulmonary system of the body. It is a good nervine. It is used in various weaknes, nervous irritability. It promotes the receiving power of five senses (B. Das, 1991) and saves the person from the vitiating effects of bodily humors. Thus it is considered as an alternative and adaptogen (PriyaVritaSharma, 1995).

It is believed that this wonder drug works in our body in following ways:

(i) Body-Mind Rejuvenation

It has also received the names of "**Pranada**" or **life giver**. Myrobalan helps in the intellect, the strength of the body, stimulates the senses. It aids to expel the urine, stool and other waste material from the body easily, thus cleaning and rejuvenating the body.

(ii) It enhances the build-up of pranashakti (life energy)

Energy which awakens the non-mechanical parts of the brain, making the brain and body fresh and alive. When the non-mechanical parts of the brain are awakened, it makes one more capable, sensitive and intelligent, and the person starts growing in awareness.

Biological and Pharmacological Activities**Antioxidant activity**

Presence of hydroxybenzoic acid derivatives, hydroxycinnamic acid derivatives, flavonolaglycones and their glycosides, as main phenolic compounds

(Saleem, M. Ahotupa, K. Pihlaja., 2001) makes the fruit stronger antioxidant than alpha-tocopherol.

Antioxidant effects of *T. chebula* extract (100 µg/mL) were compared with reference radical scavengers such as quercetin, gallic acid, and t-butylhydroquinone, and *T. chebula* extract showed 95% activity with IC₅₀ 2.2 µg/mL (S. K. Ali, A. R. Hamed, M. M. Soltan et al., 2013). *T. chebula* with a high content of phenolic constituents showed strong antioxidant and antiaging properties (S. Sancheti, B.-H. Um, and S.-Y. Seo, 2010). The strong antioxidant action of the aqueous extract of the *Terminalia* species may play a role in treating various diseases. In an *in vitro* study done to investigate the biological activities of phenolic compounds and triterpenoid constituents of *T. chebula*, 9 phenolic compounds and 8 triterpenoids were extracted. Radical scavenging activities of the phenolic compounds were higher than the triterpenoids compounds and had potent inhibitory activities against melanogenesis at a concentration of 10 µM and the IC₅₀ was 1.4–10.9 µM. These results showed that *T. chebula* with a high content of polyphenolic ingredients was a potent antioxidant (A. Manosroi, P. Jantrawut, E. Ogihara et al., 2013)

Reducing oxidative stress by enhancing antioxidant defense or decreasing the production of reactive oxygen species certainly be effective in restoring positive health. Many studies used *T. chebula* to modulate the oxidative stress adverse effects in various models of oxidation damage and aging (M. Na, K. Bae, S. Sik Kang et al., 2004). Thus, *T. chebula* certainly is useful for Positive health.

Immunomodulatory activity

Aqueous extract of *Terminalia chebula* produced an increase in humoral antibody (HA) titer and delayed type hypersensitivity (DTH) in mice (A.G. Jagpat, S.G. Karkera, 1999). The alcoholic extract of *T. chebula* focusing on its immunomodulatory activity. The results indicated elevated levels of different antioxidant enzymes, glutathione and T- and B-cells suggesting its role in immunostimulation. Further the study reported increase in concentration of melatonin in pineal glands as well as the cytokines such as IL-2, IL-10 and TNF-α which play crucial role on its immunostimulant property (Belapurkar, et al.).

Antiviral activity

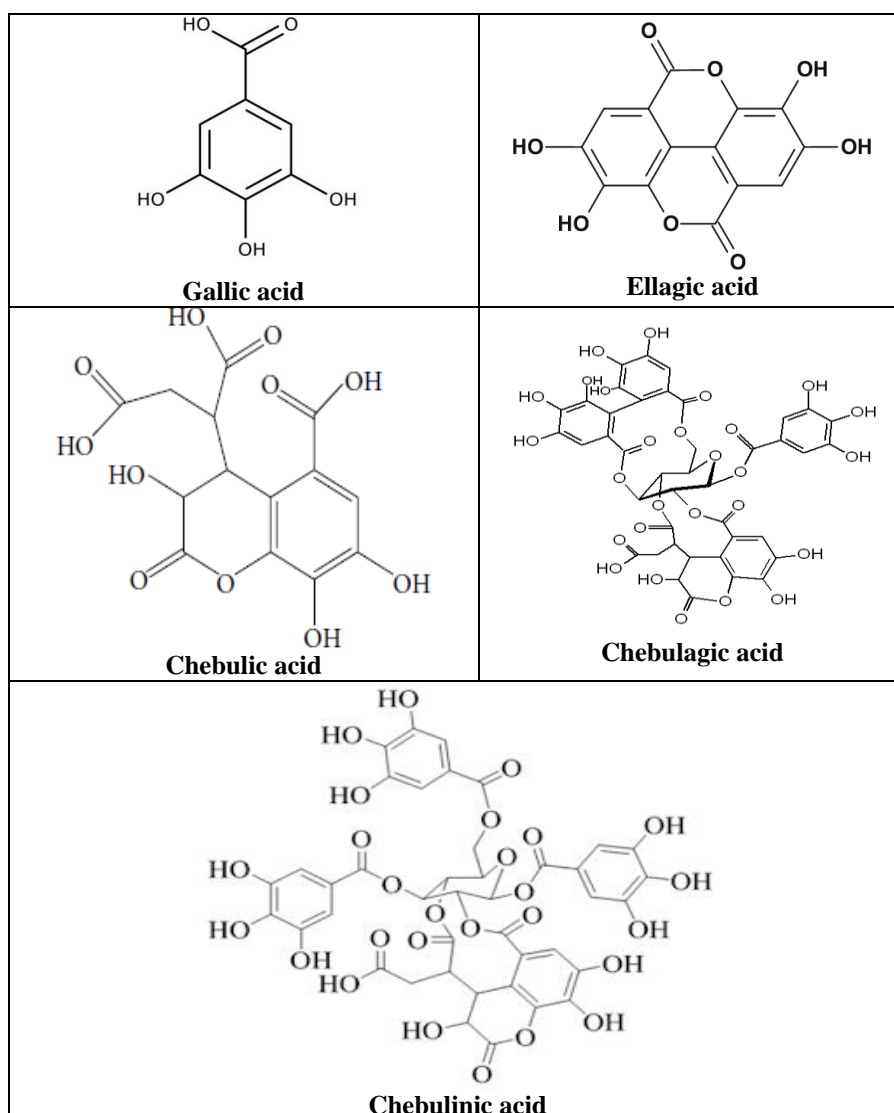
Terminalia chebula fruits afforded four immunodeficiency virus type 1 (HIV-1) integrase inhibitors, gallic acid (*Indian Medicinal Plants*, 2nd Edn.,) and three galloyl glucoses (*The Wealth of India - Raw Materials*, Vol X,). Their galloyl moiety plays a major role for inhibition against the 3'-processing of HIV-1 integrase of the compounds (A.H.N. Jeong et al. 2002). *T. chebula* has also retroviral reverse transcriptase inhibitory activity (Suthienkul et al., 1993). It protects epithelial cells against influenza A virus, supporting its traditional use for aiding in recovery from acute respiratory infections (V. Badmaev, M. Nowakowski,

2000) It also showed a significant inhibitory activity on the effects of immunodeficiency virus- 1-transcriptase (F. el-Mekkawy et al.,1995). *Terminalia chebula* has demonstrated therapeutic activity against Herpes Simplex Virus (HSV) both in vitro and in vivo tests (M. Kurowaet al.1995). These finding prompted a team of Japanese researchers to investigate *T. chebula*'s effect on human cytomegalovirus (CMV) and concluded that it may be beneficial for the prevention of CMV diseases and immunocompromised patients. It is also helpful in sexually transmitted diseases and HIV (K. Vermani and S. Garg., 2002).

Phyto-Constituents

T.chebula is rich in tannin. The chief constituents of tannin are chebulic acid, chebulagic acid, corilagin and gallic acid (A.Manosroi et al., 2013) Tannin of *Terminalia chebula* are of pyrogallol (hydrolyzable) type. Flavonol glycosides, triterpenoids, coumarin conjugated with gallic acids called chebulin as well as other phenolic compounds were also present (L.D. Kapoor.,1990).

Some important Chemical structure of *T. chebula* active ingredients.



CONCLUSION

Plants contain a wide variety of phytochemicals discussed above. The mechanisms of action of the substances are multi-faceted and often not yet extensively explored. The focus of the present article is particularly on this Indian medicinal plant used to treat viral diseases, which is cheap and easily accessible since

viral infections are now one of the biggest nightmares for mankind.

Ethnomedicine can serve as the most important and safest component of the healing and life sustaining systems. The encouraging aspects are the immunomodulatory, prophylactic and restorative properties of herbal remedies. Presently, health systems all over the world have to cope with the mutated

pathogenic threats and outbreak of the pandemic. Reliance on the traditional systems in health care can reciprocate benevolence to man by ensuring complete well-being.

ACKNOWLEDGEMENTS

The author thanks Scottish Church College, Kolkata, India.

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