

AN OVERVIEW ON COVID 19 TREATMENT BY HERBAL MEDICINES

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ABSTRACT

Herbal-based traditional medicines or phytomedicines play a significant role in disease management in Africa and are widely used as alternative medicines. Therefore, it is important to evaluate both the safety and efficacy of these indigenous botanical assets in medicine prior to endorsing their use by the medical community and the public. There have been several declarations by institutions in Member States on the use of herbal-based traditional medicine for the prevention of SARS-CoV-2 transmission or treating people with a presumptive or definitive diagnosis of corona virus disease 2019 (COVID-19). Many of the claims are difficult to verify because of the lack of documented evidence showing that these remedies prevent or clear SARS-CoV-2 infection and/or improve clinical outcomes of those suffering from COVID-19. As the pandemic continues to spread in Africa, there are increasing messages promoting the use of herbal-based traditional medicines for COVID-19. Currently, no herbal remedy has been validated for use to prevent or treat COVID19. Herbal remedies or medicines are naturally occurring, plant-derived substances that are developed mostly through a process with minimal or no respect for good clinical practice (GCP). The current pandemic of COVID-19 that is spreading across countries originated in Wuhan, China. The single cause of this highly communicable disease is a novel corona virus, called severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), which is the seventh known virus of the Corona viridae family capable of infecting humans. The latest report from the World Health Organization cited that there are now over 19 million confirmed cases and over 700,000 deaths worldwide caused by this virus. The United States of America now has the highest number of COVID19 cases (over 4 million cases), followed by Brazil (almost 3 million cases) and India (over 2 million cases). The fast propagation of this disease is mainly through close contact with infected individuals via respiratory droplets from either sneezing or coughing. Furthermore, there are two other ways of transmitting the virus, including contact and aerosol transmission.

Keywords: Phytomedicines, Herbal Remedies , Covid Treatment ,Respiratory syndrome

INTRODUCTION

The disease is typically confirmed by reverse transcription polymerase chain reaction (RT-PCR) reverse Real-Time PCR assay (RRT-PCR), which can be carried out using a variety of clinical specimens, including Bronchoalveolar lavage fluid, fibro bronchoscope

brush biopsies, sputum, nasal swabs, pharyngeal swabs, feces, or blood. But it has been reported that the sensitivity of RT-PCR might not be enough for the diagnosis of the disease. So the Computed tomography (CT), as a noninvasive imaging approach, can detect certain characteristic manifestations in the lung associated with COVID-19. The main goal of this paper is to review the newly developed or in developing medicines or remedies for the treatment of COVID-19 disease to help researchers around the world to find advantage and disadvantage of each method and select the best one. Coronavirus History The Nidovirales order, includes Coronaviridae, Roniviridae and Arteriviridae families and Coronaviruses (CoVs) are the greatest group of viruses that relate to this order and Coronaviridae family².

Although there is no research to determine what is helpful specifically for this novel virus, the following are some natural modalities one can use to both treat symptoms as well as boost her/his immune system if come down with an illness³.

OBJECTIVE

To provide a benefits/risks assessment of selected herbal medicines traditionally indicated for “respiratory diseases” within the current frame of the COVID-19 pandemic as an adjuvant treatment. Our work suggests that several herbal medicines have safety margins superior to those of reference drugs and enough levels of evidence to start a clinical discussion about their potential use as adjuvants in the treatment of early/mild common flu in otherwise healthy adults within the context of COVID-19. While these herbal medicines will not cure or prevent the flu, they may both improve general patient well-being and offer them an opportunity to personalize the therapeutic approaches⁴.

HERBAL MEDICINES

➤ TULSI

Synonym: *Ocimum tenuiflorum* (synonym *Ocimum sanctum*), commonly known as **holy basil** or **tulsi**, is an aromatic perennial plant.

family: Lamiaceae . It is native to the Indian subcontinent and widespread as a cultivated plant throughout the Southeast Asian tropics.

Genus: *Ocimum*

Species: *O. tenuiflorum*

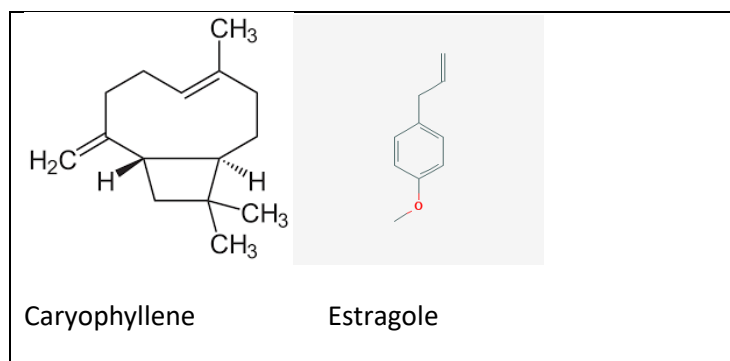
Family: *Lamiaceae*



Figure 1- *Ocimum tenuiflorum*

Chemical Constituents:

The main constituents of *Ocimum basilicum* were identified to consist of estragole (> 35.71%), (E)- β -ocimene (> 1.47%), trans- α -bergamotene (> 0.83%), τ -cadinol (> 0.41%) eucalyptol (> 0.25%) and α -caryophyllene (> 0.07%) while *Ocimum sanctum* consists mainly of eugenol methyl ether (> 34.34%), (E)-caryophyllene (> 7.91%), germacrene D (> 5.58%), β -elemene (> 4.22%) and copaene (> 1.49%). *Ocimum basilicum* and *Ocimum sanctum* leaves contain more chemical constituents followed by inflorescence and flowers.



Mechanism Of Action:

Antioxidant activity: The antioxidant activity of OS has been reported by many workers⁸⁻¹¹. The antioxidant properties of flavonoids and their relation to membrane protection have been observed²⁷. Antioxidant activity of the flavonoids (orientin and vicerin) in vivo was expressed in a significant reduction in the radiation induced lipid

peroxidation in mouse liver²⁵. OS extract has significant ability to scavenge highly reactive free radicals²⁸. The phenolic compounds, viz., cirsilineol, cirsimaritin, isothymusin, apigenin and rosmarinic acid, and appreciable quantities of eugenol (a major component of the volatile oil) from OS extract of fresh leaves and stems possessed good antioxidant activity.

Health Benefits: Tulsi is also known as "the elixir of life" since it promotes longevity. Different parts of the plant are used in Ayurveda and Siddha systems of medicine for prevention and cure of many illnesses and everyday ailments like common cold, headache, cough, influenza, earache, fever, colic pain, sore throat, bronchitis, asthma, hepatic diseases, malarial fever, as an antidote for snake bite and scorpion sting, flatulence, migraine headaches, fatigue, skin diseases, wound, insomnia, arthritis, digestive disorders, night blindness and diarrhoea. The leaves are good for nerves and to sharpen memory. Chewing of tulsi leaves also cures ulcers and infections of mouth. A few leaves dropped in drinking water or food stuff can purify it and can kill germs in it. Holy Basil is so good for boosting up the immune system. It protects from nearly all sorts of infections from viruses, bacteria, fungi and protozoa. Recent studies show that it is also helpful in inhibiting the growth of HIV and carcinogenic cells⁵.

➤ **GINGER**

Synonyms :- Adarak, Zingiber

Biological Source:- Ginger belongs to oleo gum resin category and is obtained from the rhizomes of *Zingiber officinale* Roscoe.

Family :- Zingiberaceae It is indigenous to South East Asia and cultivated in Caribbean Island, Jamaica, Taiwan, Africa, Australia, Mauritius and India. In India it is cultivated in nearly all states like Kerala, Assam, Himanchal Pradesh, Orissa, West Bengal and Karnataka

Genus: [Zingiber](#)

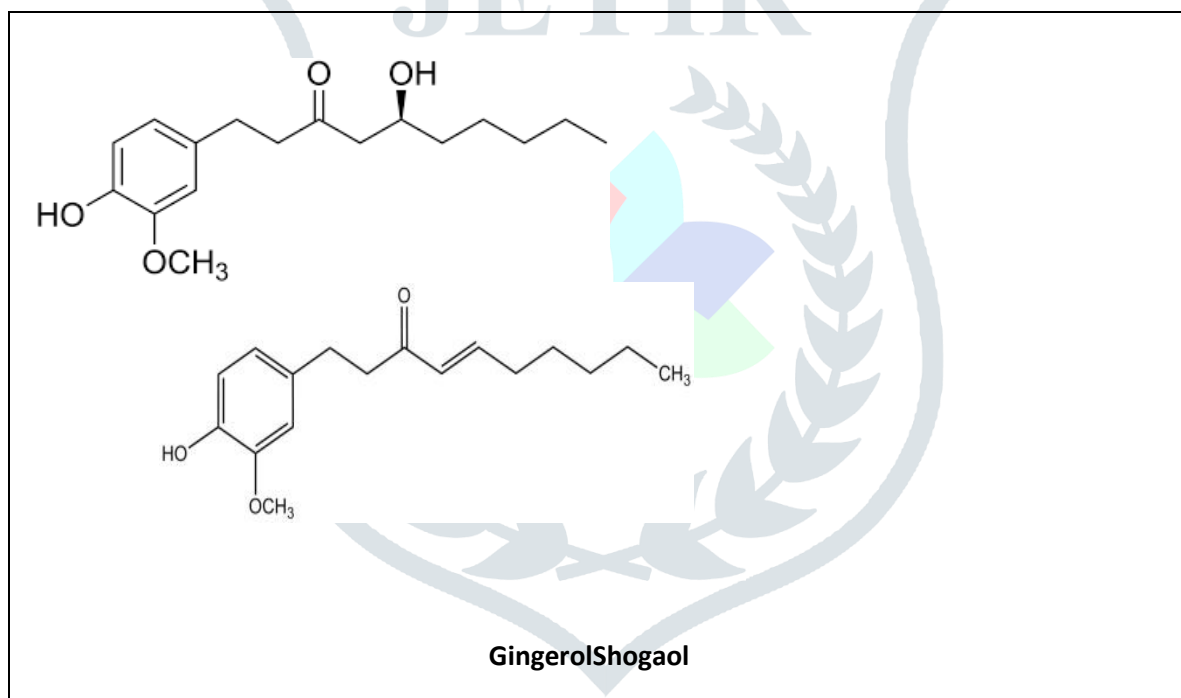
Species: *Zingiber officinale*

Family: [Zingiberaceae](#)



Chemical Constituents:

Ginger (*Zingiber officinale*), a member of the Zingiberaceae family, is a popular spice used globally especially in most of the Asian countries [9]. Chemical analysis of ginger shows that it contains over 400 different compounds. The major constituents in ginger rhizomes are carbohydrates (50–70%), lipids (3–8%), terpenes, and phenolic compounds [10]. Terpene components of ginger include zingiberene, β -bisabolene, α -farnesene, β -sesquiphellandrene, and α -curcumene, while phenolic compounds include gingerol, paradols, and shogaol (Figure 2). These gingerols (23–25%) and shogaol (18–25%) are found in higher quantity than others. Besides these, amino acids, raw fiber, ash, protein, phytosterols, vitamins (e.g., nicotinic acid and vitamin A), and minerals are also present [11, 12].



Mechanism Of Action

Antioxidant Activity: The potential mechanism for the antioxidant action of 6-shogaol: 6-shogaol leads to the translocation of Nrf2 into the nucleus and increases the expression of Nrf2 target genes by modifying Keap1 and preventing Nrf2 from proteasomal degradation. Thus, the level of GSH increases, and the level of ROS decreases.

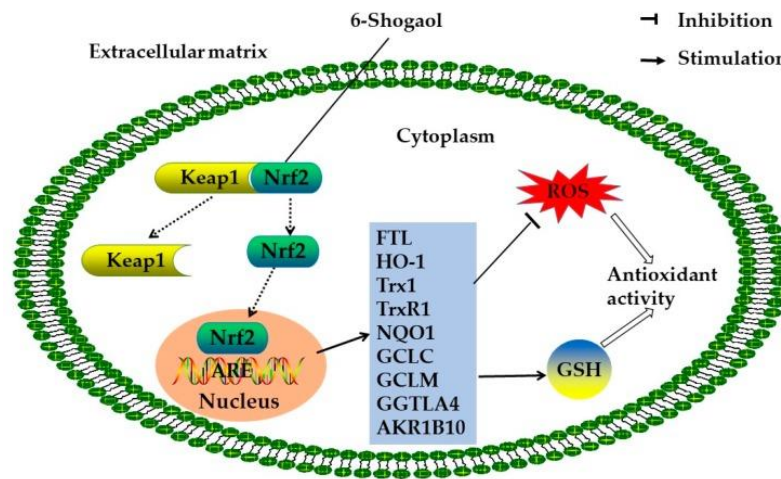


Figure 3- Antioxidant activity of Shagol

Abbreviations: Nrf2, nuclear factor erythroid 2-related factor 2; Keap1, Kelch-like ECH-associated protein 1; NQO1, nicotinamide adenine dinucleotide phosphate (NADPH) quinone dehydrogenase 1; HO-1, hemeoxygenase-1; GCLC, glutamate-cysteine ligase catalytic subunit; GCLM, glutamate-cysteine ligase modifier subunit; Trx1, thioredoxin 1; TrxR1, thioredoxin reductase 1; AKR1B10, Aldo-keto reductase family 1 member B10; FTL, ferritin light chain; GGTLA4, γ -glutamyltransferase-like activity 4; ROS, reactive oxygen species; GSH, glutathione; ARE, antioxidant response element⁶.

Health Benefits:

Nausea and vomiting caused by drugs used to treat [HIV/AIDS](#) (antiretroviral-induced nausea and vomiting). Research suggests that taking ginger daily, 30 minutes before each dose of antiretroviral treatment for 14 days, reduces the risk of nausea and vomiting in patients receiving [HIV treatment](#).

- A lung disease that makes it harder to breathe ([chronic obstructive pulmonary disease](#) or COPD). Research shows that taking two capsules of a specific combination product (AKL1, AKL International Ltd) containing ginger twice daily for 8 weeks does not improve respiratory symptoms in people with COPD.
- High levels of cholesterol or other fats (lipids) in the blood (hyperlipidemia). Research suggests that taking 1 gram of ginger three times daily for 45 days lowers triglyceride and cholesterol levels in people with high cholesterol.
- High blood pressure. Drinking black tea with ginger might lower blood pressure by a small amount in people with diabetes and high blood pressure⁷.

➤ BLACK PEPPER

Synonym: Black pepper (*Piper nigrum*) is a [flowering vine](#) in the [family Piperaceae](#), cultivated for its [fruit](#), known as a [peppercorn](#), which is usually dried and used as a [spice](#) and [seasoning](#). Black pepper is native to present-day [South India](#), and is extensively cultivated there and elsewhere in [tropical](#) regions.

Genus: Piper

Species: Piper nigrum

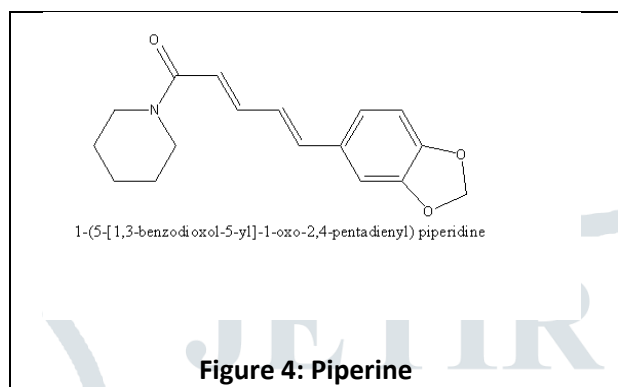
Family: Piperaceae

Chemical Constituents:

The most important candidate of *p. nigrum* is piperine, its concentration varies in different species of *p. nigrum*. For example the amount of piperine in long pepper varies upto 1-2% and in white and black pepper, it varies upto 5-10% .

Piperine can be extracted from the unripe fruit of black pepper. It is present in the concentration of 6-9% in the black pepper. In addition to Piperine, it also contains beta-carotene, lauric-acid, palmitic acid, and pepper phellandrene.

Essential compounds such as steroid, alkaloid, flavonoid, phenolics, chalcones and various lignans derivatives, in addition with terpenes isolated from black pepper.



Mechanism Of Action:

Bio-enhancing ability: Bio-enhancers are drug facilitators and in combination with drugs they can enhance the activity of drug molecules through different routes by increasing the bioavailability of a drug across the membrane, increasing the effect of drug by conformational interaction and acting as a drug receptor (Patil and others). Piperine can enhance the bioavailability of many drugs and can be applied as a bio-enhancer. The absorption of piperine across the intestinal barrier is very fast. Studies have indicated that piperine has a passive diffusion mechanism, a high apparent permeability coefficient, and short clearance time (Khajuria and others 1998). Because of the nonpolar nature of piperine, it can regulate the membrane dynamics by interacting with lipids and hydrophobic parts of the protein, which modify enzyme conformation due to a decrease in the property of membrane lipids to act as steric constraints to enzyme proteins. Piperine can enhance the permeation through the epithelial barrier because it can induce changes in membrane dynamics and permeation features, along with induction in the combination of proteins related to the cytoskeletal function which increases the absorptive surface of the small intestine (Khajuria and others 2002).

Health Benefits:

Good for Digestion: Black pepper helps in good digestion and when it is consumed raw, hydrochloric acid is released by the stomach and helps in breaking down the proteins. Hydrochloric acid helps in cleaning your intestines and barricading you from other gastrointestinal diseases. So don't forget to add a pinch of black pepper to all of your food.

Fall prevention: Early research shows that applying black pepper oil near the right side of the [nose](#) improves stability when the eyes are closed in older people. But it does not seem to improve stability better than [lavender](#) oil.

Trouble swallowing: Early research shows that applying black pepper oil to the nostrils or [nasal](#) cavity for one minute before meals improves swallowing in children with [brain](#) disorders who have been fed through a [feeding tube](#) for long periods of time. However, the black pepper oil did not eliminate the need for the feeding [tube](#). Other early research shows that applying black pepper oil near the nostrils for one minute before meals improves swallowing movements in [post-stroke](#) residents at long-term care [nursing](#) homes. This chemical seems to have many effects in the body. It seems to reduce pain, improve breathing, and reduce inflammation.

Abacterial infection that causes diarrhea (cholera), Arthritis, Asthma, Bronchitis, Cancer, Colic, Depression, Diarrhea, Discolored skin (vitiligo), Dizziness, Gas, Headache, Itchy skin caused by mites (scabies), Measles, Menstrual pain, Nerve pain, Pain, Sex drive, Stuffy nose, Sinus infection, Upset stomach, Weight loss Other conditions⁸.

➤ HONEY

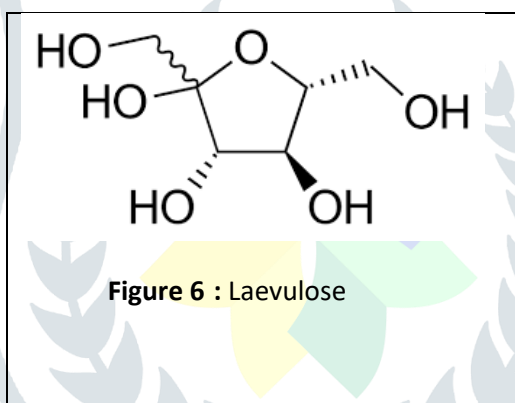
Synonym: Honey is the saccharine liquid prepared from the nectar of the flowers by the hive-bee *Apis mellifera* and bees of other species of *Apis*.



Figure 5: Honey

Chemical Constituents:

(Honey consists chiefly a mixture of dextrose and laevulose (70-80%) and water (14-20%). contains sucrose (1.2-4.5), Dextrin (0.06-1.25%), volatile oil, pollen grains enzymes Vitamins Amino acids Proteins Colouring matters, etc



Mechanism Of Action

Immunomodulatory Effects of Honey: Immunomodulation is progression of altering an immune system in a constructive or else damaging style. Many biological and chemical blends have the ability to modify immune system⁹. Immunomodulatory cytokines such as TNF- α , IL-1, IL-6, and IL-10 boost activation and proliferation of blood cells to induce phagocytic and lymphocytic activity, triggering an immunomodulatory response. It stimulates monocytes to release the cytokines such as TNF- α , IL-1, and IL-6, activating numerous aspects of immune response. Stimulatory action of honey towards leucocytes illustrates another action called “respiratory burst.” In this action, glucose of honey is absorbed to produce H₂O₂, which is considered as a leading constituent to stimulate the immune system. It also delivers substrate to glycolysis to produce energy in macrophages to allow them to perform immune modulatory function¹⁰.

A sugar, nigerose, present in honey has been found to be immune protective [160]. Nonsugar components of honey may also be responsible for immunomodulation. Antioxidant content of the honey contributes to immunomodulatory action as well. Though antioxidant compounds have been reported to stimulate immune.

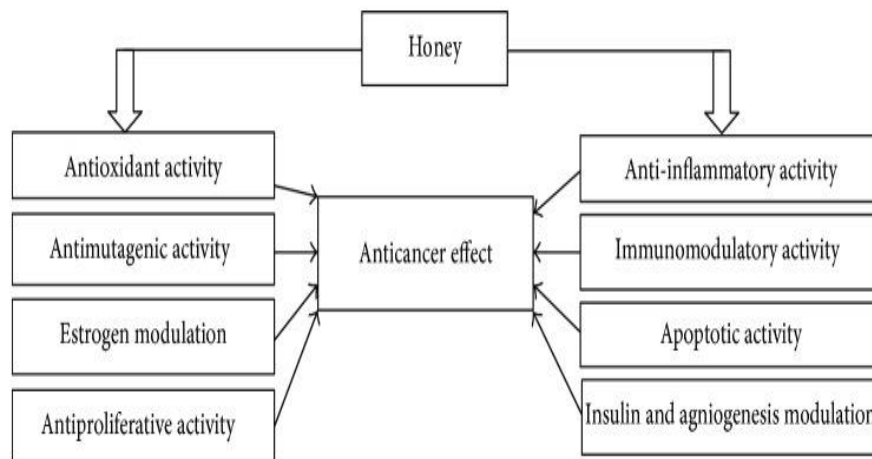


Figure 7: Mechanism of action of honey

Health benefits: It's believed that the sweetness of **honey** triggers your salivary glands to produce more saliva. This may lubricate your airways, easing your cough. **Honey** may also reduce inflammation in the bronchial tubes (airways within the **lungs**) and help break up mucus that is making it hard for you to breathe.

Honey appears most helpful as a nighttime cough suppressant. A form of nighttime asthma, called nocturnal asthma, can cause coughing, wheezing, and chest tightness. These symptoms may disturb your sleep.

Researchers at [UCLA](#) suggest taking 2 teaspoons of honey at bedtime. It's believed that the sweetness of honey triggers your salivary glands to produce more saliva. This may lubricate your airways, easing your cough. Honey may also reduce inflammation in the bronchial tubes (airways within the lungs) and help break up mucus that is making it hard for you to breathe.

Mixing 1 teaspoon with 8 ounces of hot water; have this two or three times a day. Be careful not to make the water too hot.

Mixing 1/2 teaspoon of cinnamon powder with a teaspoon of honey and having it right before bedtime. Honey and cinnamon may help remove phlegm from the throat and give your immune system a boost.

Squeezing the juice of 1/2 lemon into a glass of warm water and adding 1 teaspoon of honey. Lemon juice has antioxidants that can strengthen the immune system, and may help clear away mucus¹¹.

➤ LIQUORICE

Liquorice (British English)^[5] or **licorice** (American English) is the common name of *Glycyrrhiza glabra*, a flowering plant of the bean family Fabaceae, from the root of which a sweet, aromatic flavouring can be extracted. The liquorice plant is a herbaceous perennial legume native to Western Asia and southern Europe. It is not botanically closely related to anise or fennel, which are sources of similar flavouring compounds. (Another such source, star anise, is even more distant from anise and fennel than liquorice is, despite its similar common name.) Liquorice is used as a flavouring in candies and tobacco, particularly in some European and West Asian countries¹².

Genus: *Glycyrrhiza*

Species: *Glycyrrhiza glabra*,

Family: [Fabaceae](#)



Figure 8: Licorice

Chemical Constituents:

Licorice extract contains sugars, starch, bitters, resins, essential oils, tannins, inorganic salts, and low levels of nitrogenous **constituents** such as proteins, individual amino acids, and nucleic acids.

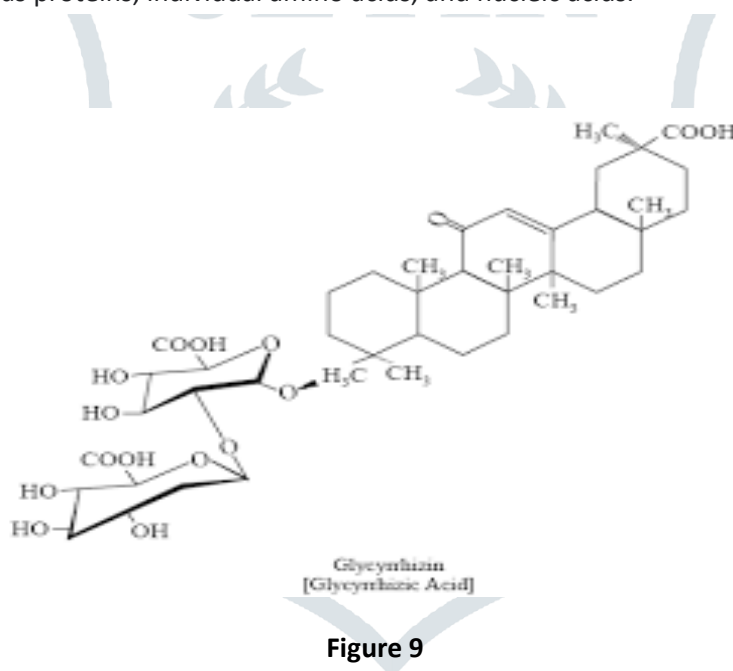


Figure 9

Mechanism Of Action

The antiradical activity, protective effect against lipid peroxidation of liposomal membrane, and inhibitory effect on whole blood reactive oxygen species (ROS) liberation of *Glycyrrhiza glabra* crude extract and glycyrrhizin, its major compound, were assessed. The licorice extract showed significant activity in all the three assay systems used in a dose dependent manner. It displayed remarkable reactivity with free stable 1,1'-diphenyl-2-picrylhydrazyl (DPPH) radical, inhibitory efficacy in peroxidatively damaged unilamellar dioleoyl phosphatidylcholine (DOPC) liposomes, and inhibition of ROS chemiluminescence, generated by whole blood, induced by both receptor-bypassing stimuli (PMA) and receptor operating stimuli (Opz) in the ranking order of stimuli PMA > Opz. These activities may be attributed to phenolic antioxidants involving isoflavan derivatives, coumarins and chalcones. Nonetheless, triterpene saponin glycyrrhizin exhibited no efficacy in the system of DPPH reaction and peroxidation of liposomal membrane, and negligible inhibition of chemiluminescence generated by inflammatory cells. These results indicate that the mechanism of anti-inflammatory effect of glycyrrhizin most probably

does not involve ROS and this major constituent is not responsible for the inhibition effects of licorice extract on neutrophil functions¹³.

Health Benefits:

- [Canker sores](#). Most research shows that applying a patch containing licorice to the inside of the [mouth](#) reduces the size of canker sores but does not speed up healing time. Rinsing the mouth with a licorice solution seems to help reduce pain and speed up healing of canker sores. Early research shows that gargling with warm water containing licorice also reduces pain in patients with canker sores.
- Side effects in people after breathing tube removal. Sucking on a licorice lozenge or gargling with a licorice fluid shortly before placement of a breathing tube seems to help prevent [cough](#) and [sore throat](#) from occurring when the tube is removed.

Insufficient Evidence for:

- Dry mouth. Early research suggests that taking a licorice mouthwash with every meal for 10 days in people on kidney dialysis with dry mouth might improve feelings of dry mouth but not the amount of saliva produced.
- [High cholesterol](#). Early research suggests that taking licorice root extract daily for 1 month reduces [total cholesterol](#), low-density lipoprotein (LDL or "bad") cholesterol, and [triglyceride levels](#) in people with high cholesterol.
- High potassium levels. Some research suggests that certain components in licorice decrease potassium levels in people with diabetes or kidney problems.
- Mouth sores (lichen planus). Early evidence suggests that administering a certain licorice component intravenously (by IV) improves symptoms of mouth sores in people with hepatitis C.
- Swelling (inflammation) and sores inside the mouth (oral mucositis). Early research in patients with head and neck cancer shows that taking licorice by mouth and also applying it into the mouth might help to prevent these sores during [cancer treatment](#).
- An [autoimmune disease](#) that causes widespread swelling (systemic lupus erythematosus or SLE).
- An inherited fever disorder ([familial Mediterranean fever](#)).
- Arthritis.
- Bleeding.
- Cough¹⁴.

➤ **AMLA**

Phyllanthus emblica, also known as **emblic, emblic myrobalan, myrobalan, Indian gooseberry, Malacca tree, or amla** from Sanskrit **amalaki** is a [deciduous](#) tree of the family [Phyllanthaceae](#). It has edible [fruit](#) by the same name.

Genus: *Phyllanthus*

Species: *Phyllanthus emblica*,

Family: [Phyllanthaceae](#)

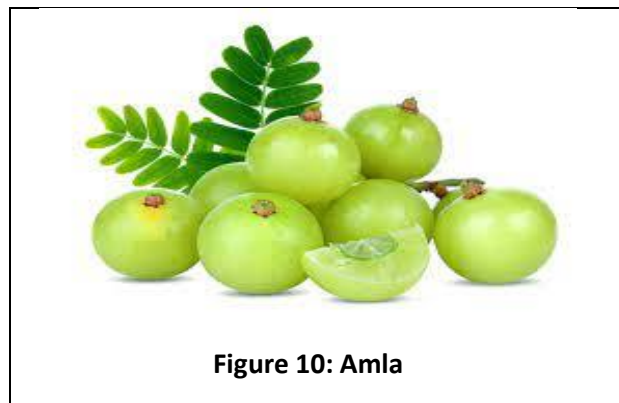
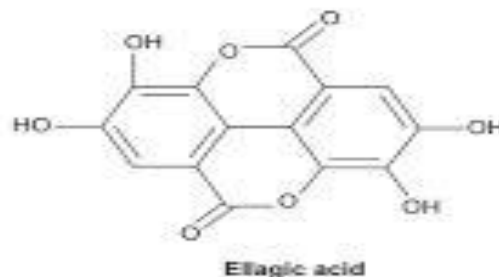
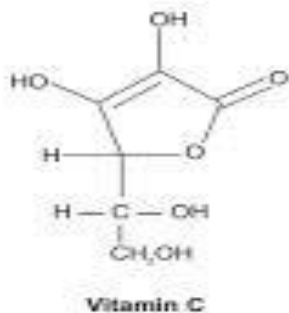


Figure 10: Amla

Chemical Constituents:

The pulpy portion of fruit, dried and freed from the nuts contains: gallic acid 1.32%, tannin, gum 13.75%; albumin 13.08%; crude cellulose 17.08%; mineral matter 4.12% and moisture 3.83%. **Amla** fruit ash contains chromium, 2.5 ppm; zinc 4 ppm; and copper, 3 ppm (Kumar et al., 2012a).



Mechanism Of Action:

Alteration in basic homeostatic balance of the body is the origin of disease. Imbalance between pro-oxidant and anti-oxidant homeostasis place a major role in majority of ailments. Pro-oxidant condition dominates either due to increased generation of free radicals and/or their poor quenching/scavenging by the anti-oxidants (which protects the body against the deleterious effects of free radicals).^{18, 37} Amla is one of the richest sources of vitamin-C and low molecular weight hydrolysable tannins which makes Amla a good antioxidant. The tannins of amla like emblicanin-A (37%), emblicanin-B (33%), punigluconin and pedunculagin are reported to provide protection against oxygen radical included haemolysis of rat peripheral blood erythrocytes.³⁸ The mechanism behind antioxidant activity is due to the recycling of sugar moiety and conversion of the polyphenol into medium and high molecular weight tannins. The powerful antioxidant Ellagic acid, present in Amla, can inhibit mutations in genes and repairs the chromosomal abnormalities.³⁹ Amla inhibits the growth and spread of various cancers like breast, uterus, pancreas, stomach and liver cancers. It Int. International Journal of Pharmaceutical Sciences Review and Research Available online at www.globalresearchonline.net 155 can prevent and/or reduce the side effects of chemotherapy and radiotherapy.^{21, 39} More than 18 compounds were identified in amla fruit which can exert anti-proliferative activity on gastric and uterine cancer cells. The main mechanism behind its activity is by enhancing Natural Killer (NK) cell activity in various tumor cells.¹³ Emblicanin A& B of amla fruit are reported to possess strong antioxidant and anti-cancer properties. Amla exert its pharmacological activities by altering several physiological pathways/ mechanisms in the body. Some of them are presented in the¹⁵.

Health Benefits: *E. officinalis* is considered to be a powerful rasayana (rejuvenator) and to be useful in delaying the degenerative as well as a senescence process. It helps to increase longevity, improve digestion and to treat constipation. It also diminishes fever, cleanses the blood, decreases cough, eases asthma, strengthens the heart, benefits the eyes, encourages hair growth, invigorates the body, and augments the intellect, as per the ayurvedic system of medicine. In several folk medicines the fruits, which are astringent, are beneficial in treating ophthalmic problems, dyspepsia, gastritis, hyperacidity, constipation, colitis, hemorrhoids, hematuria, menorrhagia, anemia, diabetes, cough, asthma, osteoporosis, premature graying of hair, weakness and fatigue. *E. officinalis* is also stated to have hepatoprotective, cardioprotective, diuretic, laxative, refrigerant, stomachic, restorative, alterative, antipyretic, and anti-inflammatory properties. Besides being a hair tonic, *E. officinalis* also prevents peptic ulcer dyspepsia, and is a digestive medicine¹⁶.

➤ GILOY

Tinospora cordifolia (common names **gurjo**, **heart-leaved moonseed**, **guduchi** or **giloy**) is a herbaceous vine of the family Menispermaceae indigenous to tropical regions of the Indian subcontinent. It has been in use for centuries in traditional medicine to treat various disorders.

Genus: *Tinospora*

Species: *T. cordifolia*

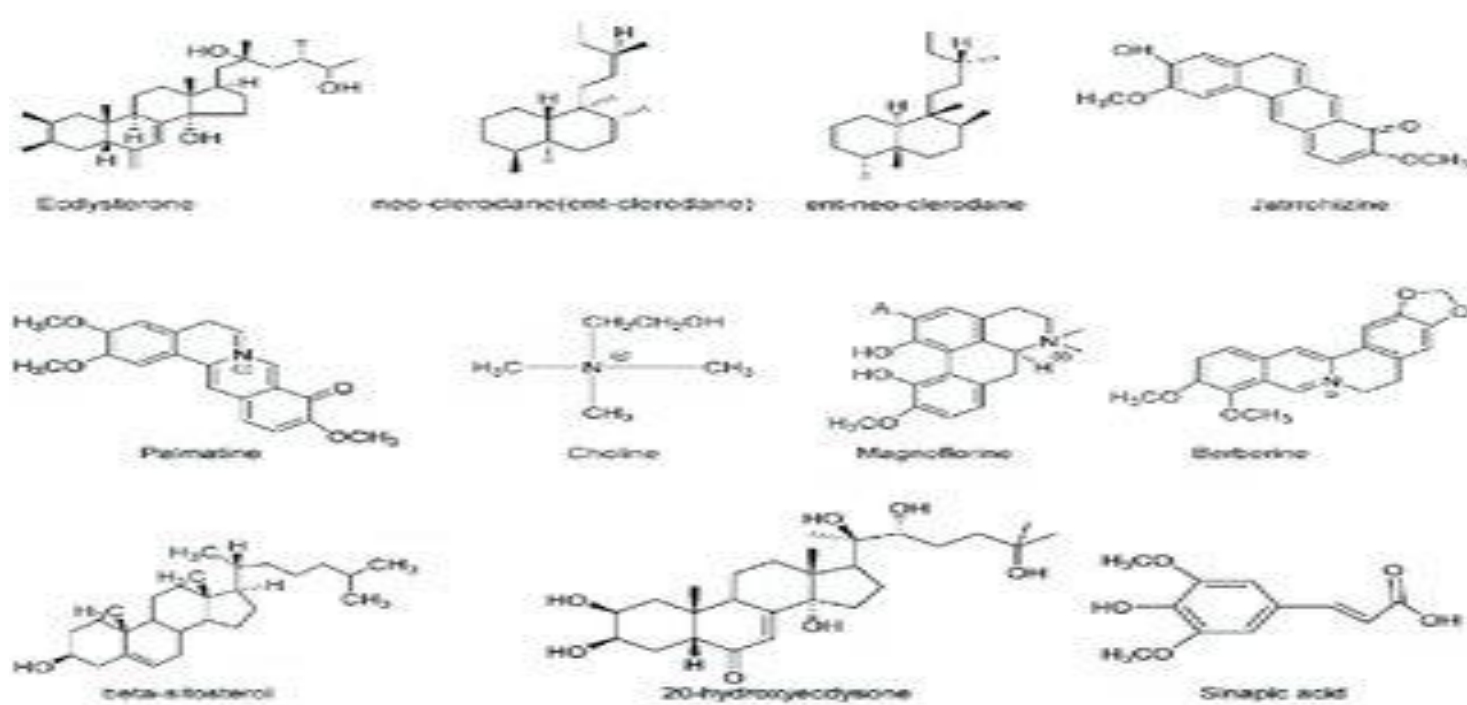
Family: [Menispermaceae](#)



Figure 11 : Giloy

Chemical Constituents:

Different chemical constituents such as giloin, columbin, chasmanthin, palmatine, isocolumbin, tembetarine, syringing, ecdysterone, cordioside, tinocordifolin, tinocordifolioside, cordifolioside A, palmarin, tinosporin and tinosporic acid have also been isolated from different parts of Giloy¹⁷.



Mechanism Of Action

Antioxidant Activity: *T. cordifolia* is mentioned as *vishaghni*, *vishahara* and *tridoshashamaka* in various texts of Ayurveda. A significant increase in the concentration of thiobarbituric acid-reactive substances (TBARS) in brain, along with its decrease in heart, was observed in diabetic rats. *Tinospora cordifolia* treatment decreased the concentrations of glutathione reductase (GSH) and decreased activities of superoxide dismutase (SOD), catalase and glutathione peroxidase (GPx) in the tissues of diabetics rats. Alcoholic extract of the root of *T. cordifolia* (TCREt) administered at a dose of 100 mg/kg orally to diabetic rats for 6 weeks normalized the antioxidant status of heart and brain.

Immunomodulatory Activity: In Ayurveda *T. cordifolia* is believed to have *haverasayana* (rejuvenating), *balya* (tonic), *vayahsthapana* (anti-aging), *aayushyaprada* (increases the lifespan), *vrishya* (aphrodisiac) and *chakshusya* (useful in eye disorders) properties. The alcoholic and aqueous extracts of *T. cordifolia* are reported to have beneficial effects on the immune system and have been tested successfully for their immunomodulatory activity. The degradation of proteins due to photosensitization as assessed by Sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) was effectively reduced by simultaneous treatment with G1-4A/PPI (partially purified immunomodulator) from *T. cordifolia* during photosensitization. The novel (1,4)-alpha-D-glucan derived from the plant activates the immune system through the activation of macrophages via TLR6 signaling, NF-kappaB translocation and cytokine production. *Tinospora cordifolia* differentially regulate elevation of cytokines as evidenced by the increased production of antiangiogenic agents IL-2 and tissue inhibitor of metalloprotease-1 (TIMP-1) in the B16F10-injected, extract-treated animals¹⁸.

Health Benefits:

The stem of Giloy is considered highly effective because of its high nutritional content and the alkaloids, glycosides, steroids, and other compounds found in it, but the root and leaves also can be used.

These compounds present in Giloy have effective against various disorders, such as diabetes, cancer, neurological problems, fever, etc¹⁹.

Consumption-As per Ayurveda, Giloy can be consumed in either a powdered form or can be in the form of kadha (decoction) or even juice. Nowadays it is **also available in capsules** and readymade powder. Giloy applied topically too as a paste for skin problems.

The regular dose of Giloy is a teaspoon at a time, taken twice a day. The dose might vary depending on the type of health problem.

Preparation-To prepare Giloy juice, you need some clean, chopped branches of the plant. Blend these chopped branches with a cup of water in fine, green liquid paste. Now, sieve this green paste to make a Giloy juice²⁰.

Health Benefits of Giloy: Giloy is a strong immunity booster, anti-toxic, antipyretic (that reduces fever), **anti-inflammatory**, antioxidant. This classical medicine is the ultimate answer to all health anomalies²¹.

1: Giloy for chronic fever

In Ayurveda, two factors cause fever – Ama (toxic remains in the body due to improper digestion) and the second one is due to some foreign particles. Giloy acts wonderfully in chronic, recurrent fevers. It is an anti-inflammatory, antipyretic herb which helps to boost your immunity to fight against the infection and also helps in early recovery. Giloy has a Javarghana (antipyretic) property to **reduce fever**.

How to use – Take 2-3 tablespoons of Giloy juice and a similar amount of water. Mix them well. Drink this mixture daily in the morning on an empty stomach.

4: Giloy for Corona-virus infection

Giloy can boost immunity hence it may be useful for various fevers specifically for viral fevers like **corona infection**. Though there is no evidence that Giloy can cure corona infection but it can raise your immunity to fight against it. According to some scientific studies, the results show promising results to control Corona infection.

How to use it – You can take Giloy kadha or Giloy juice two times per day for 4-6 weeks. Some studies suggest that a combination of Giloy and Ashwagandha may provide you a shield against this deadly infection.

5: Controls blood sugar level

In Ayurveda, Giloy is known as a ‘Madhunashini’ which means ‘destroyer of sugar’. It helps to enhance the production of insulin which ultimately controls the blood sugar levels. Giloy is also useful for diabetes complications like ulcers, kidney problems.

How to use – Take 1/2 teaspoon of Giloy powder twice a day with water after taking lunch and dinner.

6: Boosts immunity

This herb activated the immune system of our body and increase vitality in a person. Include Giloy juice or kadha in your diet twice a day can improve your immunity. It is full of antioxidants and helps to release toxins from the body. Giloy juice also detoxifies your skin and improve your skin. Giloy is also used for liver diseases, urinary tract infections, and heart-related issues.

How to use – Take 2-3 teaspoons of Giloy juice. Add the same quantity of water to it and mix it. Drink it preferably before meals once or twice a day to boost your immunity²².

HERBAL MEDICINAL PREPARATIONS USE IN COVID 19²³



Amrutarishta



Mahanjishtadi



Tulsi Ayush kadha



Mahasudarshan kadha



Dr. Vaidya's Huff N Kuff Kadha



Rhumaglob capsule



Respi -G



Uricnil-CR



Torch XV



BOOSTEX FORTE

CONCLUSION

About Eighty Percents of the world's people depend largely on traditional plant derived drugs for their primary health care. Additionally, several of our existing medicines are derived directly or indirectly from higher plants. Some essential plant derived drugs are atropine, codeine, Bhandari and Kamdod: *Emblica officinalis* therapeutic applications | October-December 2012 | International Journal of Green Pharmacy 266 morphine, digitoxin/digoxin, and quinine/artemisinin. Medicinal plants serve as sources of direct therapeutic agents and raw materials for the manufacture of more complex compounds, as models for new synthetic products, and as taxonomic markers. While several classic plant drugs have lost much ground to synthetic competitors, others have gained a new investigational or therapeutical status in recent years. Moreover, a number of novel plant derived substances have entered into Western drug markets. Clinical plant based research has made particularly rewarding progress in the important fields of anticancer (e.g., taxoids and camptothecins) and antimalarial (e.g., artemisinin compounds) therapies. In addition to purified plant derived drugs, there is an enormous market for crude herbal medicines. Furthermore, use of indigenous medicinal plants reduces developing countries' reliance on drug imports

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