

"Role of a various herbs for the prevention of Influenza-like illnesses"

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Submitted: 15-01-2022

Accepted: 27-01-2022

ABSTRACT: Influenza-like illnesses (ILI) is characterized by various respiratory diseases which contribute major morbidity and mortality in many tropical countries, it is very unclear about the pathogens which cause influenza-like illnesses in a community, various symptoms of ILA include sneezing, coughing, sore throat and fever, etc. Amla contains a high value of Vitamin C which shows very promising results in eradicating the influenza virus in various researches published previously. Ginger has been proved for antiviral activity against Human Respiratory Syncytial Virus (HRSV) in respiratory tract cell lines. The aqueous extract of ginger shows activity against Avian Influenza (H9N2) along with that the role of immunity boosters like ginger and amla is shown to be effective to prevent catching various respiratory viruses including coronaviruses, various herbs like tulsi and giloy are widely known for their immunomodulatory effect, giloy is widely used in ayurvedic medicine for the treatment of various types of fevers a very common symptom of coronaviruses, tulsi is widely used as an antitussive, immunomodulatory medicine, in ayurvedic medicine it is commonly given to treat cough, sneezing and sore throat which are very common symptoms of various respiratory viruses like corona viruses, influenza viruses etc, so by the use of such herbal drugs the immunity against various respiratory viruses including SARS COV19 can be increased.

KEYWORDS: Influenza-like Illnesses (ILI), Human Respiratory syncytial virus (HRSV), High Dose Vitamin C.

I. INTRODUCTION:

These viruses belong to a wide family of groups. These types of viruses can spread disease in both animals and humans [1]. There are mainly seven types of coronaviruses that may cause infection in humans all over the world but most of the common people infected by four types of

coronaviruses' like- virus NL63, virus 229E, virus HKU1, and virus OC43. These four types of viruses can cause the respiration infection in the humans like the common cold and some other diseases which are more severe in humans for examples- Severe Acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and the newly discovered virus are coronavirus that can cause viral infectious disease in the whole world [1]. The acute respiratory syndrome coronavirus 2 (SARS-CoV-2) may cause Lyme disease in the peoples. These diseases can be called by the name Novel Corona virus-Infected Pneumonia (NCIP) given by WHO. In recent 2019, this virus called corona virus (2019-nCoV). Further, the world health organization renamed condition COVID-19 on eleven February 2020 by tweet. In Wuhan, Hubei Province; China in December 2019 outbreak of COVID-19 spread by this virus novel corona virus (SARS-CoV-2) in, the current breakout is officially prevalent [2]. Since more information about this virus is increasing, scientific readers are very keen to update themselves [3]. The RNA virus are commonly spread from one individual to another via respiratory secretions produced at the time of coughing and sneezing. It is thought to be more transmissible when people are symptomatic, although asymptomatic transmission may be possible in patients. Time from being exposed to infection and showing symptom is generally between 2 and 14 days, with an average of five days. General symptoms include high temperature, cough, sneezing, and breath lessness. In Complicated cases there may be pneumonia, sore throat, and acute respiratory distress syndrome [4]. Influenza-like illnesses show a variety of symptoms which include, fever, chills, sore throat, sneezing, and coughing, etc. In the majority of cases, the symptoms are due to cytokines released by activation of the immune system and thus relatively non-specific. Emblicaofficinale is a

natural antioxidant which is a rich source of vitamin C, regular use of amla can boost the level of immunity and also minimize the cellular damage, amla is known as the richest source of vitamin C [5].

GINGER: The chemical compounds of ginger include various chemicals that scavenge free radicals produced by various metabolic reactions in the body. For energy production, some free radicals generated during the process of oxidation are essential. Increased production of free radicals results in oxidative stress that can lead to DNA damage. In such a situation of imbalance, an extra quantity of antioxidant supplementation through dietary mode is essential for the vitality of the organism. The anti-oxidative properties of ginger and its components have been explored in various *in vitro* and *in vivo* tests. Strengthening the body defenses by improving the antioxidant status will undoubtedly protect humans against many chronic diseases. The very important chemical obtained in the ginger is Shogaol and they have antioxidant and anti-inflammatory properties. The shogaol contains alpha, beta-unsaturated ketone moiety. Animal modeling showed that ginger significantly lowered induced lipid peroxidation and raised the levels of antioxidant enzymes, together with serum glutathione [6].

AMLA: Amla contains a high value of Vitamin C which shows very promising results in eradicating the influenza virus in various researches published previously [7]. Vitamin C is the best source of antioxidant properties like it can be a handle to scavenge damaging reactive oxygen species, it is responsible for protects the human body tissue and cells from dysfunction and cells damaging. But, the vitamin also contains many other major functions inside the body, like they can maintain and support the immune system. Whenever the infectious disease occurs the level of vitamin C exhausts and the patients required more amount of vitamin C for infectious harshness [8]. In most of the severe cases, the patients can be required the dose in gram by the intravenous route to attain the maximum level of vitamin C inside the body. During February 2020, the scientific nature of infectious

people with COVID-19- shows the pneumonia indication that almost 26% were shifted to the ICU just because of typical complications of infections like- shock and ARDS [9]. In USA 167 infectious patients with sepsis-related ARDS show that the drug administration of vitamin C for four days by intravenous route ~ 15 gram per day for decline mortality in the patients [10]. An earlier IV vitamin C trial of patients admitted to the ICU with pneumonia included hydrocortisone administration [11], however, systemic corticosteroid treatment has not been shown to have significant benefits in patients with COVID-19 [12].

GILLOY: The synonym of Giloy is *Tinospora Sinensis* (Lour.) Merr, *Guduchi/Amrita*, *Tinospora cordifolia*, *Tinospora*, *Gulanacha*, and *Giloya*. The biological source of giloy is the *Tinospora cordifolia* and *Menispermaceae* family. The giloy basically found in Myanmar, China, Sri Lanka [13]. The plant giloy is used for the treatment of leprosy, helminthiasis, heart diseases, and rheumatoid arthritis. The giloy is also used to support the immune system for the body's resistance against infections. They play for supporting standard white blood cell structure, function, and levels [14].

TULSI: The biological name of tulsi is *Ocimum sanctum* Linn and its family is *Labiaceae*. The tulsi basically found Asian countries' areas and some tropical and semitropical areas of India. It is a basically mature plant and plant height is about 75-90 cm. Tulsi leaves are nearly round and length is about 5 cm long. The color of tulsi flowers is purple to reddish in color, and the color of the fruit of tulsi is yellow to reddish in color [15]. The tulsi in Ayurveda are documented for their therapeutic activity. In traditional medicine practitioners in India tulsi are used for the management of the various diseases [16].

1. CHEMICAL COMPOSITION OF AMLA: It is considered as a highly nutritious and richest source of vitamin C, Amino acids, and minerals. It contains various Chemicals like Alkaloids, Phenols, Tannins, Among Tannin semiblicanin A&B, gallic acid, and ellagic acid are reported to possess biological activity [17].



Figure no.1 AMLA

2. CHEMICAL COMPOSITION OF GINGER:

It is a drug that comes under the zingiberene family. The major chemical presents are Carbohydrates, Terpenes, lipids, and phenolic

compound, terpene component of ginger include β -bisabolene, zingiberene, α -curcumene. Phenolic compounds include gingerol, paradols, shogaeset and α -favnese[18].



Figure no.2 GINGER

3. CHEMICAL COMPOSITION OF GILOY:

Giroy basically consists of some important components like- glycosides, alkaloids, steroids, aliphatic compound, sesquiterpenoid

essential oils, a mixture of polysaccharides and fatty acids. Giroy also contains various types of alkaloids like- bitter gilonin, berberine [19].



Figure no.3 GILOY

4. CHEMICAL COMPOSITION OF TULSI:

The tulsi mainly contains some components like-flavonoids, resins, tannins, steroidal terpenes,

glycosides, alkaloids, anthraquinone, cardiac glycoside, saponin, steroidal ring, and also carbohydrates [20].



Figure no.4 TULSI

5. USES OF AMLA, GINGER, GILOY, AND TULSI IN TRADITIONAL MEDICINE:

Emblicofficinale is one of the most used drugs in traditional medicine; it is also called as king of all medicine and considered as the strongest Rsayana particularly for bone, blood, liver, and heart. It is believed to increase immunity against various diseases [21]. Ginger is used traditionally to treat upset stomach, bloating, dyspepsia, besides this fresh juice of ginger, it is used to treat upper respiratory infections, skin burns, etc because of its warming effect ginger act as an antiviral for the treatment of cold and flu[18]. The Giloy is basically used as a traditional ayurvedic drug and also give various therapeutic properties [13,22] like- jaundice, urinary disorder, diabetes, rheumatism, skin diseases, anemia, inflammation, anti-periodic, allergic condition, radioprotective, etc. [23,24] The root part of the Giloya is considered as bowel obstruction and potent emetic. The presence of starch in giloy is a beneficial household remedy for relieves burning sensation, chronic fever, for increased appetite and energy. In traditional medicine system tulsi is used as aromatic, stimulant, and antipyretic. It is also used in some common symptoms like-as a cough alleviator, a sweat inducer, and a mitigator of indigestion and anorexia [25].

6. ROLE OF GINGER, AMLA, GILOY AND TULSI IN PREVENTION OF INFLUENZA-LIKE ILLNESSES

GINGER: The main use of ginger rhizome is in the treatment of diseases like respiratory illness and its inflammations which occur in smokers. This type of ginger extract study for immunity-boosting power, for thyroid hormones, for hematology (smokers) and antibodies is the first study. The healthcare workers in Saudi have been identified for the experiment of aqueous ginger extract daily for 21 days it contains thirty three smokers' workers and thirty five non-smoker workers. The samples of blood were collected prior and after the experiment. The complete and differential blood counts and concentrations of C - reactive protein, IgH, IgM, and thyroid hormones. Results showed that before consumption of the extract, smokers had a significantly lower mean red blood cell (RBC) count compared to non-smokers, smokers had a significantly higher mean lymphocyte and RBC counts, and hemoglobin concentration; and a significantly lower mean neutrophil count, and IgM and thyroid-stimulating hormone concentrations. In conclusion, the extract had different effects on cells and antibodies of the immune system in smokers and non-smokers although both benefited from the enhancement of the thyroid gland. In the case of smokers the level of mean RBC counts and, hemoglobin levels are enhanced. In the case of anemia in smokers ginger can be useful. Individuals who do not smoke had increased mean

IgM levels which are thought to produce stronger antibody response, or humoral immunity, against infections. Therefore, we can conclude that ginger extracts had benefits for both type of individual whether they smoke or not [26].

AMLA: During February 2020, the scientific nature of infectious people with COVID-19- shows the pneumonia indication that almost 26% were shifted to the ICU just because of typical complications of infections like- shock and ARDS[9]. In USA 167 infectious patients with sepsis-related ARDS show that the drug administration of vitamin C for four days by intravenous route ~ 15 gram per day for decline mortality in the patients [10]. Whenever orally management of amla extract in the body dose 50 mg per kg body weight they can reduce the amount of TNF- α , pro-inflammatory cytokines, and IL-6 in serum. These results suggest that amla fruit extract may be an effective anticoagulant and anti-inflammatory agent so provide strength to the respiratory system against viruses that causes inflammatory disease in the lungs like n covid19 [27].

GILOY: The giloy contains some active components like- N-methyl-2-pyrrolidone, cordifolioside A, tinocordiside, 11-hydroxymustakone, N-formylannonain, magnoflorine. The giloy immunomodulatory property is well documented [23].

TULSI: It generally happens that we use home remedies for various ailments and ayurvedic experts also says that in most of the cases, such remedies are very effective. In the case of viral flu home remedies are very helpful to treat illness. The tulsi is also having some medicinal properties. In traditional Ayurveda, medicine tulsi play the best antibiotics activity and its taste is bitter and slightly astringent. Tulsi is the daily used ingredients in various Indian home remedies. Tulsi show some activities like- antibacterial, antioxidant, and antiviral properties. There is some common effect of tulsi on blood glucose of diabetic patient can themselves to create various complications like in China, where the primary epidemic of Covid-19 case happens so fast, in this situation people with diabetes had enough increase rates of severe complications and death than people without diabetes and mostly we believe that the further health conditions someone has to show the increased break of getting severe complications from COVID-19. In 1964 the conducted clinical trial with 10 patients with type 2 diabetes

announced that over a period of 12 weeks, use of 14 gram of tulsi plant get to a continuous advance of fasting blood glucose in 9 patients out of 10 patients [28]. Tulsi plants are consisting of some important activities for example- antioxidants, antiseptic vitamin C, and antiviral activities (cold and flu) properties. In medicinally tulsi leaves are the best solutions in case of viral infections and their actions show for increasing immunity against viral infections [29].

ACKNOWLEDGMENT: Authors are highly thankful to Dr. Sanjar alam sir Head, faculty of pharmacy R V Northland Institute, Dadri, Greater Noida, G B Nagar, India for support during my literature survey.

II. CONCLUSION:

From the available research, it is found that role of immunity is one of the primary weapons to prevent respiratory viral infections such as COVID, and studies showed that various herbal drugs like amla, tulsi, giloy, and ginger Contain various phytoconstituents which can boost immunity, various studies showed that anti-inflammatory, immunomodulatory, antiviral and antioxidant property of these compounds, so use of such herbal drugs may prevent respiratory infections including COVID 19 although more research has to be done to prove their role to prevent COVID.

Conflict of interest:

The Author clarifies that there is no conflict of interest

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