

# Inhibition of Viral Infection by Using of Natural Herbal Remedies as Alternative Treatment

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## ABSTRACT

Virus disease is transmitted disease caused by recently discovered a group of viruses infecting respiratory tract, most of the infected people have major clinical signs such as; cough, sneezes, cold, fever and sore throat. The virus can be transmitted among people through the generated droplets when an infected person (coughing and exhales) or physical contact. Natural herbal remedies has been used for a long periods of ancient human history for different purposes. The desirable properties of herbal medicine are low toxicity and natural origin, as well as it is causes few side effects due to the use of additives and preservatives in a very small quantities and this made it a favorite as an alternative treatment. The current study shows the antiviral

properties of natural herbal oils such as; Lavender, Peppermint, Cinnamon, Eucalyptus and Thyme oils for the purpose of treating Virus disease.

**Keywords:** Lavender, COVID-19, Herbal and Antiviral activity.

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## INTRODUCTION

COVID-19 was first revealed in Wuhan, Hubei Province in China, at the end of 2019, this viruses are important human and animal pathogens. In Wuhan, several cases of pneumonia were caused by virus. This virus is characterized by its rapid spread which led to an epidemic throughout all major cities of China. Then the number of cases began to increase in numerous countries all over the world, the World Health Organization (WHO) in the end of February 2020 documented the disease of coronavirus 2019 [1]. SARS-CoV-2 is severe acute respiratory syndrome coronavirus2 which designated. Corona virus is caused by a fast spreading virus that works to inject its genome into the host's nucleic acid and combine with it, and then begins the multiplications as well as it mainly depends on other organisms for its growth. This is leads to difficult to remove the causative agent of the disease which makes it a major topic for research conducted by many researchers, drug developers and scientists. In this paper we focus a lot on the use of alternative treatments such as herbal medicine and alternative oils to prevent the corona virus disease or to treat the illness caused by this virus. When using herbal drugs in treating patients, there should be continuous observations of treatment and its effect for the purpose of changing the dose as soon as required, and depending on effects observed by the herbalist. So far, there is no proven scientific evidence yet that these alternative treatments (traditional Iraqi medicine) such as the use of some herbs and essential plant oils to stop and treat virus disease. Although some of these alternative treatments have very few side effects. After distribution of viral infections, only 0.1% of a mortality rate were recorded in Guangdong compared with Wuhan's rate which was 2.6%. In addition, none of those confirmed Zhejiang patients had died, it is possible that the reasons are related to the fact that these patients in Guangdong and Zhejiang were consuming these herbal drinks in large quantities to get rid and relieve the symptoms, even before conducting some tests that confirm the disease. While

noting the areas that were using herbal remedies, it was found that they recorded fewer deaths compared to the areas that do not use this type of treatment. There is a lot of research and reviews that support the use of herbs in treating viral infections also, these herbs can be taken in the form of modern pills and the patients with acute condition were fully supported with artificial respirators. Certainly, when using a mixture of both traditional and modern treatment, it can significantly decrease the severity of the clinical signs, symptoms and death rate in China. According to laboratory studies, Shuang huanglian oral liquid discovered by the China Institute which can be used to prevent nCoV-19 infection. It is also difficult to ascertain the most effective way between modern drugs and herbal remedies because of the different opinions. There are many who support the use of herbal aromatic oils and other herbs on the basis of their personal experience, while others are still skeptical about their use. It is important to say this viral strain is not easily obtained in Iraqi laboratories and very dangerous, it is unreasonable to conduct any clinical or preclinical test during such a very short period. It seems inappropriate at the present time to assume alternative drugs to what appears to be a pandemic sweeping the world in a very short time. Also, many specialists are still working to prove its effectiveness, also recommendation about unproven and unconfirmed drugs by health experts can be false and unsafe. Many preventive measures that prevent viral infection can be recommended, but not treatment advice.

Herbal oils responsible for treating Corona virus infection

There are two basic terms about the effectiveness of essential oils against viruses; they are either antiviral or virucidal, and the difference between them is “antiviral” are not common virus killers but prevents the multiplication of a virus whereas virucidal refers to destroying and killing the virus. There are some viruses that can be sensitive to certain herbal

oils, but others can be resistant to the same herbal oils used. The herbal oils are mixture of complex volatile and lipophilic substances that provide these oils a distinctive aromatic smell [2]. Many herbal extracts and fragrant herbal oils are available on the market, as well as in the household kitchen and due to the common use of these oils make them be safe and appropriate for human consumption [3,4 and5]. Many previous studies have shown that many of these oils and their components have antibacterial and antiviral properties [6] and [7]. Oregano (*Origanum vulgare*) and clove (*Syzygium aromaticum*) essential oils are very efficient towards many viruses especially enveloped viruses such as; Herpes simplex virus type 1 (HSV-1) and (Newcastle) virus, but on the contrary it is ineffective against non-enveloped viruses such as; poliovirus (type-1) and adenovirus (type-3)[8]. As well as, discovery research for antiviral activity does not parallel to discovery an “important oil method for the virus”, such as an in vitro and in vivo study observing an

avian virus that responsible of upper respiratory infections in chickens and other birds exhibited that a exclusive compound revealed virucidal activity and was very strong in controlling virus-linked bronchitis in small chickens [9]. The botanical oleoresins and essential oils were present in the compound reported by manufacturers but did not announce the formulation, also another laboratory study conducted on the same avian virus found that alcoholic plant extracts could inhibit the virus infection. The most effective and acceptable were methanol extracts, but not distilled essential oils from Peppermint (*Mentha piperita*), Thyme (*Thymus vulgaris*), and showy tick-trefoil (*Desmodium canadense*)[10]. There are six essential herbal oils as follows; Lavender, Cinnamon, Eucalyptus, Tea tree, Peppermint and Thyme oils which are selected to demonstrate some of their beneficial properties as antiviral or virucidal which protect against Virus (Table 1).

Table 1: Some characteristics of herbal essential oils [11].

Herbal oils	Scientific name	Chemical Composition	efficacy
Lavender oil	<i>Lavandula angustifolia</i>	R-enantiomers of linalool, linalyl acetate, limonene, eucalyptol, camphor, terpin-4-ol, lawandulol and lavandulyl acetate.	Antiviral activity
Peppermint oil	<i>Mentha piperita</i>	Menthol, mentone, cineol, menthyl acetate, menthofuran, limonene and carvone.	virucidal activity
Cinnamon oil	<i>Cinnamomum zeylanicum</i>	trans-cinnamaldehyde, o-methoxy-cinnamaldehyde, cinnamyl aldehyde, benzaldehyde, phenylethanol, borneol, eugenol, coumarin, and cinnamic acid	Antiviral activity (inhibitory activity)
Eucalyptus oil	<i>Eucalyptus globulus</i>	1,8-cineol (eucalyptol), limonene, alpha-pinene, gamma-terpinene, and alpha-terpineol	Antiviral activity (suppress viral multiplication)
Tea tree oil	<i>Melaleuca alternifolia</i>	terpine-4-ol, teripene, alpha-terpinene, cymene, alpha-pinene, terpinolene, and 1,8-cineol.	Antiviral activity (suppress viral Multiplication)
Thyme oil	<i>Thymus vulgaris</i>	Thymol, p-cymene, terpinene, linalool, carvacrol, myrcene and terpin-4-ol	Antiviral activity (inhibitory activity).

One of the preferred ways to use these herbal oils is heat them and inhale their concentrated vapors to prevent of virus infection because of the heat acquired in herbal essential oils during evaporation is encourages the destruction of viruses. As well as, it can also be used to treat respiratory infections caused by severe acute respiratory syndrome in crowded places. Also, simple hand-held inhaler apparatus can be used for the purpose of inhaling vapors concentrated with herbal oils and other useful materials, which are either antiviral, antibacterial, and antifungal.

Mechanism of action of Herbal oils for corona virus treatment

Several herbal essential oils have antiviral properties, but the mechanisms of action are summarized as follows; the herbal essential oils which appeared coat the glycoproteins of viruses (potent of viral sites) leading to (nonspecific) and (nonproductive) binding to host cells which hinder the virus from infection occurs Fig-1.

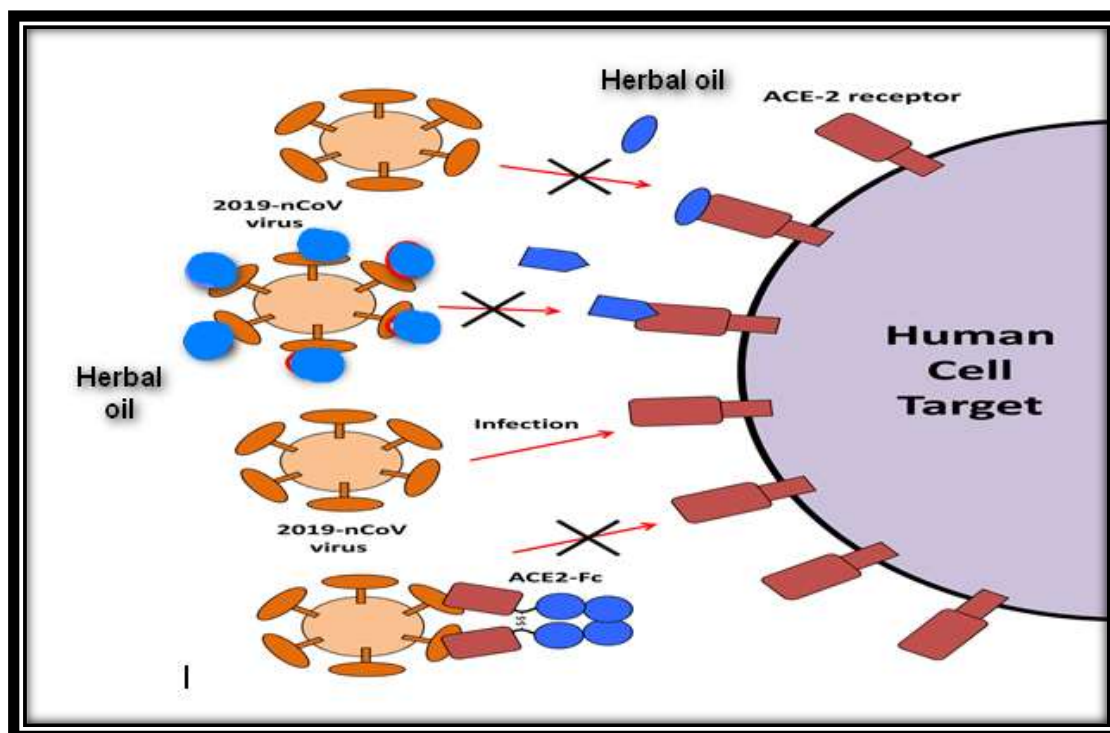


Fig 1: Mechanism of action of Herbal oils against viral particles.

Other mechanism of action for herbal oils is binding of herbal oils with human cell receptors (respiratory cells ACE-2) which prevent the virus from binding to receptors. There is a study done by Dudani and Saraogi [12], revealed that Chinese institute had discovered Shuanghuanglian oral liquid, this liquid consists of a mixture of skull cap; Honeysuckle, and Forsythia considered as (antiviral and antibacterial), it was also found to have immune system-enhancing properties, as the Chinese use it to treat commonly known symptoms such as, fever, cough and sore throat. However, the actual chemical component in the preparation used to treat the infection was not identified. A previous study titled (Study progress on Antiviral activities and mechanism of Flavonoids in Traditional Chinese medicine and natural medicines) exhibited the flavonoids separated from (Litchi seeds) may be used to treat the symptoms of SARS-CoV3CL by inhibition of essential protein synthesis process of the virus.

## CONCLUSION

In conclusion, treatment with herbal essential oils can be effective in treating virus. Contrary to numerous viewpoint, herbal essential oils have confirmed potential as antiviral and antimicrobial agents. It can be considered an alternative treatment with other a few allopathic medicines thought to be (effective) plus artificial respirators which help lung function. This is due to many reasons such as; the actual effectiveness of herbal oils is weaker compared to the manufactured compounds such as Antibiotics, also a few cases of total healing recorded after giving herbal medicines. Absence of an allopathic drug, in addition to absence of information about the viral strain responsible of Infection occurs. The herbal oils when joined with recent medicine and life support system, work best with continuous

monitoring. Additional studies and research should be conducted as quickly as possible to determine fully effective chemical components for treating infections, until now herbs and essential oils must be used to treat the viral infection and prevent it's spread while keeping the side effects of these herbal oils in our minds.

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