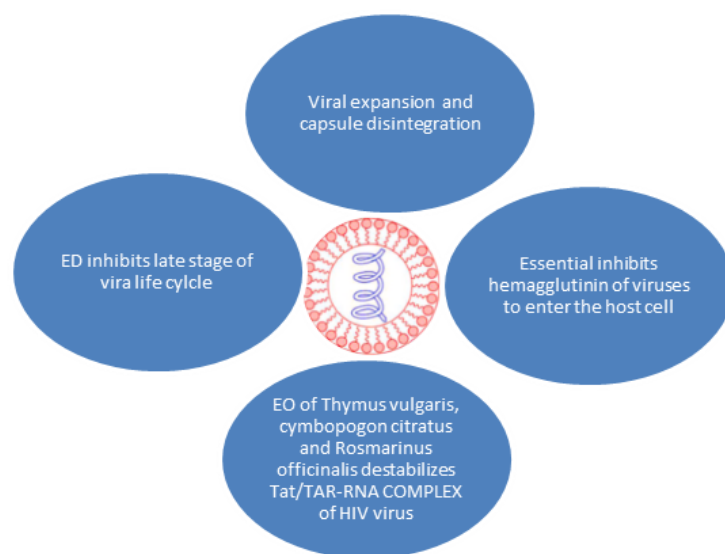




ANTIVIRAL POTENTIAL OF ESSENTIAL OILS

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Viral diseases are prevalent globally and hence, are a major concern. Due to the narrow spectrum of antiviral drugs, drug resistance has been observed in drugs like Acyclovir, Amantadine, and Zidovudine which has led to the need of discovering novel therapeutic alternatives which can overcome the resistance. Therefore, the essential oils (EOs) derived from plants are considered potential therapeutic agents. Several studies have highlighted essential oils as great candidates for treating antiviral-resistant infection due to their chemical complexity, which confers broad-spectrum modes of action and non-specific antiviral capabilities.



EOs derived from a number of aromatic and herbal plants have been shown to have virucidal effects on a variety of viruses, including IFV, HSV, HIV, yellow fever virus, and avian influenza, among others.



LAVANDULA ANGUSTIFOLIA
(LAVENDER)



THYMUS VULGARIS



CYMBOPOGON CITRATES

Essential oils and their chemical constituents have been shown to have antibacterial properties against a variety of bacteria, fungi, and viruses. Essential oils are defined as a complex blend of volatile organic molecules produced spontaneously in various areas of the plant as part of the plant's secondary metabolism. The presence of phenolics, terpenoids, aldehydes, ketones, ethers, epoxides, and many other chemicals dominate the chemical composition of essential oils, implying that essential oils must be effective against a wide spectrum of pathogens.

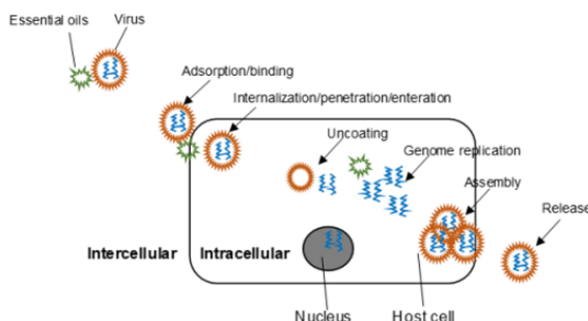


Figure 1. Possible targeting sites of essential oils during viral lifecycle. Figure 1 illustrates the extracellular inhibitory properties, in which EOs interfere with free virions by modifying the virus envelope structure or masking the viral proteins required for viral adsorption and entry into host cells, or intracellular inhibitory properties, in which EOs interfere with viral uncoating, recombination, assembly, or release. For the same, the infected cells are treated with EO at different time intervals of the viral infection lifecycle.



ROSMARINUS OFFICINALIS



SALVIA OFFICINALIS
(SALVIA)

Some of the examples of effective EO include

- a. *Lavandula angustifolia* (lavender)
- b. *Thymus vulgaris*
- c. *Cymbopogon citrates*
- d. *Rosmarinus officinalis*
- e. *Salvia officinalis* (salvia)

All these acts as powerful natural anti-inflammatory, antioxidant, and antiviral agent.

In conclusion, Essential oils are lipophilic, which means they can easily permeate viral membranes, causing membrane breakdown. This article will aid researchers in their hunt for chemical entities derived from plants that could act as antiviral inhibitors.