

**UTILIZATION OF MENTHE, CAMPHOR, EUCALYPTUS AND OTHER VOLATILE OILS IN QUICK REMEDIES FOR NASAL CONGESTION****Bharat V. Jain\***, **Sandip R. Pawar<sup>1</sup>**, **Tanvir Y. Shaikh<sup>1</sup>**, **M. Zuber Shaikh<sup>2</sup>**<sup>1</sup>Department of Pharmaceutics, Smt. Sharadchandrika Suresh Patil College of Pharmacy, Chopda, Maharashtra, India<sup>2</sup>Head of Zoology Department, RFNS Senior Science College, Akkalkuwa, Maharashtra

**ABSTRACT:** Essential oils (EOs) are being used in various health care fields for their known antimicrobial, anti-inflammatory, analgesic, and other uses. Antibiotics and multidrug resistance have led to the continuous need to discover new drug moieties and alternative treatments against infection-causing bacteria. Due to the growing population and pollution, respiratory tract infections are increasing tremendously. Essential oils due to their volatile nature can easily reach the upper and lower respiratory tract by inhalation. Due to their antimicrobial and anti-inflammatory actions, they may provide relief from the common cold, cough, and inflammatory conditions like sinusitis, asthma, bronchitis, COPD, pneumonia, and others. This study is an attempt to enumerate quick remedies for nasal congestion and how these remedies work.

**KEYWORDS:** Antibiotics, Essential Oils, Alternative Treatments, Inflammatory Condition.

**INTRODUCTION**

While vapor rub and onions seemed to be favourites in curing a broad spectrum of illnesses, the diverse backgrounds from which these cures stem from just goes to show that women around the world are a lot more closely linked than we might think. For marginalized communities in particular, this process often requires mothers to simultaneously act as cultural gatekeepers. Passed down and learned from their mothers, these rituals, and the pride in them, become intergenerational. Without this preservation of practices, these home remedies, and our confidence in their healing, may otherwise be lost.

A runny nose is bothersome. Nasal congestion and discharge are common occurrences. When there is so much mucus in the nose, it is impossible to take a deep breath in or let it out. But, when you try to blow the nose, nothing comes out. There is a complex system of open/closed valves in the nose's extensive network of blood arteries. When someone becomes sick, the infection stimulates the nerves in the nose, opening the valves and allowing more blood to flow into the nasal passages. It leads to congestion because it creates edema in the nasal passages.

Depending on the root of the problem, several treatments may be attempted. One must get medical assistance if the stuffy nose or nasal congestion lasts more than two days, especially if you also have other symptoms like a fever. Yet in the early stages, a stuffy nose responds well to several home treatments. Nasal irritation may be alleviated with the use of several tried-and-true home remedies and palliative care techniques.

Some of the many potential reasons for a runny nose are:

**Table 1: Diseases caused by bacteria, virus, fungi leading to nasal congestion**

S. No.	Diseases caused by bacteria, virus, fungi	Frequency
1	A typical cold	Common
2	Sinusitis	Common
3	Nasal allergy symptoms	Common
4	Asthma	Not Common
5	Malfunctioning nose symptoms	Not Common
6	Polyp of the nose	Not Common

## OBJECTIVES

The objectives of this study are:

- (i) To enumerate quick remedies for nasal congestion
- (ii) To study how these quick remedies work

## METHODOLOGY

The various methods used as remedies for nasal congestion have been listed and examined along with causes and cures common to this health condition

### At-home treatments for a blocked nose

One easy remedy for a blocked nose is to take deep breaths of steam. It's been around forever, and it's still the best remedy for that annoying stuffiness in your nose. In the past, individuals would pour hot water into a bowl and then place a cloth over their heads to inhale the vapour. Steam inhalation is still used, however now a variety of steamers are available. One option is to use an antibacterial herb in a steamer (Gill and Holley 2004)<sup>1</sup>, such as peppermint seeds, and then to drink the resulting steam a couple of times daily.

To relieve a stuffy nose, try applying a warm compress to the area around your nose and forehead. This will help reduce any swelling and free up your nasal passages. Applying heat to the bridge of the nose from outside is quite effective. The nasal and sinus irritation is reduced, facilitating better breathing.

The anti-inflammatory and properties of ginger help clear a congested nose (Tafrihi, Imran, Tufail, Gondal, 2021)<sup>2</sup>. Compressing with ginger is another option. Two cups of water with ginger slices may be boiled and used to maintain compressor efficiency. Apply the brew to a clean washcloth and gently pat it on the face for 15 minutes. Making some ginger tea and drinking it three times a day has been shown to alleviate stuffiness in the nose almost immediately.

Honey: This all-purpose remedy helps with a wide variety of illnesses. It has a lot of helpful nutrients including vitamins and minerals. Furthermore, it possesses antimicrobial properties that aid in the battle against numerous bacterial illnesses. Honey helps ease congestion in the nose, soothe an itchy throat, and eliminate excess mucus. If your nose is stuffy, try mixing two teaspoons of honey with a cup of lukewarm water. Honey in warm beverages like milk or tea may also help alleviate discomfort.

The anti-inflammatory properties of garlic and its ability to boost white blood cell counts make it one of the finest foods for boosting immunity. It aids the immune system in making antibodies that may be used to combat respiratory infections. At least twice a day, use several garlic cloves or crushed garlic in a bowl of hot soup.

Grapes are a great source of vitamin C and antioxidants, both of which work to strengthen the immune system, and grapefruit extract has been shown to have same effects. A potent antioxidant called Quercetin is found in it, and it helps with allergies (Tafrihi, Imran, Tufail, Gondal, 2021)<sup>2</sup>. It is recommended that you put a few drops of grapefruit extract in a bowl of warm water and inhale the vapours. This extract's steam works promptly to unblock a stuffy nose.

Because of their high vitamin and antioxidant content, onions have been linked to a wide range of health advantages (Singh, Shushni and Belkheir 2015)<sup>3</sup>. You just need five minutes of sniffing grated onion to get rid of a stuffy nose due to the intense odour.

Black pepper, among spices, is quite effective in relieving nasal congestion. The combination of one tablespoon of black pepper and one tablespoon of honey heated in water may be used as a powerful remedy for a stuffy nose.

The nutrients in apple cider vinegar are just what you need to clear out that stuffy nose. The antibacterial and antifungal capabilities are an added bonus. To alleviate these symptoms, take 2 teaspoons of cider vinegar mixed with 3 cups of warm water at least 3 times daily. Honey might be added to this beverage.

Keep yourself well hydrated by consuming fluids like juice and soup that has a high water content. They reduce sinus pressure by helping thin mucus in the nasal passages, which helps drain fluids from the nose.

**Table 2: Symptoms that need medical consideration**

S. No.	Symptoms that need medical consideration
1	Nose congestion that lasts longer than 5 days may be indicative of a more severe problem.
2	If you're having trouble breathing (either by nose or through mouth)
3	Signs like green mucous, chest pain, and a persistent cough are not the only ones you should be on the lookout for.
4	It might be problematic if a stuffy nose was followed by other symptoms like a headache, earache, or face discomfort.
5	When one's fever and stuffy nose persist despite the use of over-the-counter medications and other at-home treatments, medical attention may be necessary.

These signs might be indicative of a more severe underlying condition, such as a bacterial or viral infection. At the earliest opportunity, they should be shared with the family physician. Most of the mothers around the world emphasize that their culture has home

remedies that provide solutions for common cold and congestion. These remedies came to our moms from their moms and these hand-me-down remedies have travelled down from generations thus. Some of in the present generation would still remember the times when we had a cold during our childhood and our mothers made us sit down in a chair with our feet in warm water. They would then rub vapor rub into the soles of our feet and advise us to keep them dipped in water. While our feet were soaking, we had to drink a hot [cinnamon](#) tea or sweetened milk with turmeric or ‘kawa’ (tea made with lots of tulsi, ginger, a corn of black pepper and dry fruits with a twist of lemon grass). We would always feel better after this. It is later in life that we discovered that the power of vapor rub has eucalyptus essential oil, which helps loosen up themucus in the chest.

Fortunately, children in homes where mothers practice home remedies grow up with a holistic understanding of wellness. One common cold cure that mothers popularly pass on to us are: fill a basin with hot water (not warm, hot) and mix in a teaspoon of Vicks Vaporub, then grab a dish towel. “Wet the dish towel with the mixture and place it over the top of the basin. Put your face onto the cloth and breathe deeply for 5 to 10 minutes.”

This [will clear your sinuses](#) and undoubtedly have you breathing right again. For nasal congestion, moms also advocate [gargles with salt water](#). If we had a sore throat, runny nose, or any flu-like symptom, a glass of luke- warm salted water would promptly appear on our side table. Thanks to the Covid-19 pandemic – this became a worldwide practice in every home. Warm salted water gargles were sworn by to keep those affected by coronavirus, as also thus recovering from its morbid symptoms.

Common cold also makes mothers swear by ginger. It’s honestly their cure-all for cramping, congested or being groggy. According to the home remedy one has to grind ginger with lime and strain the juices until smooth, then adds cloves and drink this daily. This helps to strengthen the immune system.

#### **Eucalyptus oil:**

*Eucalyptus globulus* belongs to the *Myrtaceae* family. “It originated from two words *Eu* meaning ‘true’ and *calyptus* meaning ‘to cover’. It is extracted by steam distillation and rectification from fresh leaves of various species of Eucalyptus. This oil is colorless or pale-yellow liquid with an aromatic odour (Ali, Al-Wabel, Shams, Ahamad, Khan, Anwar, 2015)<sup>5</sup>. Eucalyptus oil is primarily used in the treatment of upper respiratory tract infections such as cold, cough, bronchitis, and symptomatic relief from catarrh.”

Various studies support the antimicrobial activity of Eucalyptus making it a natural preservative. It can be used as an alternative antibacterial agent in Ayurveda for the treatment of various infections. Various preclinical and clinical studies have revealed the potential use of Eucalypts in the treatment and management of respiratory diseases (Hamidpour, Hamidpour, Hamidpour, Shahlari 2013)<sup>4</sup>, pain, oral health, diseases, cancers, etc.

#### **Thymol:**

*Thymus vulgaris* or thyme is known as “garden thyme” and belongs to the family *Lamiaceae*. In Greek, the word thyme means “to fumigate”. Thyme oil is obtained from the fresh flowering aerial parts of *Thymus vulgaris* or other species of *Thymus*. It is extracted by steam distillation. It is a clear, yellow, or dark reddish-brown liquid with a characteristic aroma (Ali, Al-Wabel, Shams, Ahamad, Khan, Anwar, 2015)<sup>5</sup>. Thyme has been used for centuries due to its various pharmacological properties. It shows antioxidant, anti-inflammatory, analgesic, expectorant,

free radical scavenging, antibacterial, antiviral, antifungal, antiseptic, antitumor, antispasmodic, and carminative properties, along with a few more important activities. The significant phytochemicals present are terpenoids, flavonoids, phenolic acids, and glycosides. Due to its anti-inflammatory properties, Thymol is used for managing respiratory conditions such as whooping cough, bronchitis, asthma, sinusitis, and catarrh. It is recommended for bacterial and fungal infections. In the ancient Roman era, Thyme was consumed before and after meals due to its properties as an antidote (treatment for poisoning). It was a preferred herb for bathing due to its antidote property. Various studies show that the antidote property of this herb is due to the presence of the phytochemicals such as thymol and carvacrol. These properties make it an important herb in managing conditions like cold, sore throat, bronchitis, asthma, whooping cough, pharyngitis, and other respiratory tract infections.

**Pine oil:**

*Pinussylvestris*(Pine) belongs to the family *Lamiaceae*. The essential oils are derived from the needles of the pine tree. The medicinal properties of pine oil include analgesic, antiallergic, antibacterial, anti-inflammatory, antifungal, and antimicrobial. They help in opening the airways and also show expectorant actions.

**Camphor:**

The Lauraceae family includes *Cinnamomumcamphora*, often known as the camphor tree. Camphor is used in many products, including lotions, balms, and oils, because of its many therapeutic benefits. Camphor has therapeutic uses. It demonstrates analgesic, anti-inflammation, anti-infection, antiseptic, antispasmodic, expectorant, and nasal decongestant effects. Due to these qualities, it is the best treatment for ailments like colds and fevers and for reducing inflammation in illnesses including infectious disorders, bronchitis, sinusitis, and asthma.

**Menthol:**

“*Menthapiperita*(peppermint or mint) belongs to the family *Lamiaceae*, which is one of the most aromatic plant species. Phytochemicals derived from the mint family show anticancer properties against different cancers such as cervix, lung, breast, and much more in humans (Greay, Hammer, 2011)<sup>6</sup>. The species of *Mentha*are rich in polyphenols and contain caffeic acid and its derivatives like caftaric acid, cinnamic acid, ferulic acid, and oleanolic acid. Flavonoids like luteolin and its derivatives apigenin, acacetin, thymonin, diosmin, and salvigenin are present in these plants.” Of all the phytochemicals present, the essential oils of these species play an important role (Horne, Holm, Oberg, Chao, Young, 2001)<sup>7</sup>. Menthol has a calming effect that can help with dyspnea, according to numerous studies. Moreover, it lessens the amount of effort required for both physical and mental respiration as well as discomfort from breathing, fear, and worry.

**Table 3: Method of inhaling essential oils**

S. No.	Method of using	Precautions
1	Inhaling directly	A few drops of essential oil can be added to a tissue, which should be held close to the face as you softly inhale. Avoid getting essential oil on your skin directly since it can irritate it.

2	Inhaling steam	Put a few drops of oil into steaming water and take a deep breath in. You can make a steam chamber by placing a towel over your head.
3	Using a diffuser	Diffusers are used to disseminate essential oils into the air. Using this method, you can breathe in essential oils steadily and comfortably in the comfort of your own home.
4	Adding to a bath	Inhale the soothing aroma of an essential oil by adding a few drops to your bath water.

Oregano, savoury, clove, and nutmeg essential oils, which all have high concentrations of volatile phenolic chemicals, are more efficient against Gram-positive than Gram-negative pathogenic germs. Yet, some essential oils, such as *Achillea* spp. (Yarrow), have been demonstrated to have powerful antibacterial effect against Gram-negative respiratory infections (*Haemophilus influenzae*, *Pseudomonas aeruginosa*), while *Streptococcus pyogenes* was the most resistant to this oil. Some essential oils, such as peppermint and spearmint, can prevent methicillin-resistant *Staphylococcus aureus* (Ali, Al-Wabel, Shams, Ahamad, Khan, Anwar, 2015)<sup>5</sup>. Previous research has indicated that essential oils mostly composed of aldehyde or phenol had the strongest antibacterial effect.

Results from these research reveal that essential oils like thyme, cinnamon, lemongrass, perilla, and peppermint can be effective in fighting off respiratory tract infections. As Gram-positive bacteria were more likely to come into contact with the essential oils, it has been proposed that the tolerance of Gram-negative bacteria to essential oils can be attributed to the presence of a hydrophilic outer membrane (Horne, Holm, Oberg, Chao, Young, 2001)<sup>7</sup>.

Essential oils, such as -pinene, -pinene, and cineole, were shown by electron microscopy and other studies to result in the loss of cytoplasmic material in bacterium cells treated with these compounds. By interfering with the lipid component of the plasma membrane, phytochemicals such -unsaturated aldehydes and a number of monoterpenes can kill bacteria.

Nevertheless, rather than directly acting on membrane functional proteins, the antibacterial effects of these aldehyde compounds are mediated via alterations in membrane permeability and leaking of intracellular materials. Carvacrol, citronellol, and geraniol are just a few of the essential oils found in oregano and rosewood that have been related to membrane disruption and whole-cell lysis.

## CONCLUSION

The essential oils mentioned in this study are clinically proven to have antibacterial, antiviral, antifungal, anti-inflammatory, analgesic, nasal decongestant, and anti-allergic properties. Using these essential oils can be used as an alternative or supportive therapy to manage both upper and lower respiratory tract diseases (Hamidpour, Hamidpour, Hamidpour, Shahlari 2013)<sup>4</sup>. These essential oils are also ideal to use in steam inhalers, diffusers, handkerchiefs, and as a booster dose for vapor patches for inhalation. They have been used in traditional ways and form a significant part of home remedies.

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