

Formulation & Evaluation of Perfume based on Herbal oils

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Abstract

Essential oil from lavender flowers and tea tree leaves was extracted using the processes of distillation, maceration, and steam distillation. The technique of extracting **perfume** involves taking aromatic components out of basic materials. The goal of this study was to extract essential oils from specific aromatic and medicinal plant, flowers and leaves in order to formulate a natural perfume. Lavender and *Melaleuca alternifolia*, being part of the *Myrtaceous* family, are the sources of aromatic essential oils. Linalool, 1,8-cineole, linalyl acetate, α -terpinene, γ -terpinene, α -terpineol, terpinen-4-ol, p-cymene, and α -pinene are the main chemical constituents of aromatic essential oils. In order to reduce the possibility of instability and discomfort and guarantee that it is safe for human use, a number of tests have also been carried out. Lavender's capacity to promote tranquility without inducing drowsiness is a significant benefit. In addition to promoting mental calmness, lavender reduces anxiety by moderating the body's fight-or-flight response. While tea tree oil offers calming qualities that help promote relaxation, ease tension, and enhance the quality of sleep, the essential oil of lavender has shown effectiveness in reducing stress. Studies have indicated the beneficial effects of aromatherapy in mitigating stress, and tea tree oil is a highly effective essential oil in this regard. You can use certain essential oils in place of others to create a natural aroma for body splashes or air fresheners. Before doing so, though, it's crucial to conduct more toxicological evaluations on the product.

Keywords: Lavender oil, Tea tree oil, Essential oil.

Introduction

Perfume usage dates back thousands of years. In their religious rituals, the Egyptians employed herbs, gums, and resins. Over time, scented materials were employed to improve physical beauty and to create a more comfortable atmosphere in homes and public areas. Fragrances are accepted as typical elements of our daily existence. Many individuals believe that wearing a fragrance will make them feel good. This is likely due to the links that have been found between memory and scent, as well as the fact that certain perfumes have been demonstrated to change moods and even reduce tension and anxiety. Perfumes are substances that release and spread a pleasant, aromatic scent. They consist of artificial mixtures of aromatic chemicals and essential oils. Prior to the eighteenth century, natural aromatic oil was typically used to create perfumes (Yogesh et al, 2023). Aroma chemicals refer to the synthetic scented molecules used in perfumery as well as natural fragrance compounds derived from plants or animals (Surburg et al, 2006). The method of extraction—typically steam distillation—determines the quantity and quality of essential oils that are extracted from the entire aromatic plant or a portion of it. The scent of perfume is created by combining sweet-smelling essential oils with other aroma compounds, solvents and fixatives to create a pleasing aroma for the body, objects, and environments. Since the beginning of written history, people have worn perfume to try to mask or improve their odor by simulating the calming scents of nature. (Tilahun et al., 2021). Perfume is a mixture, usually in liquid form, containing aromatic essential oils, scent compounds, solvents and fixatives. It is applied to give the food, human body, animals, items, and living spaces a pleasant aroma. Perfumes are substances that release and diffuse a pleasant, fragrant scent. They consist of artificial mixtures of aromatic chemicals and essential oils. "Right from the earliest days of scientific chemistry up to the present time, perfumery have significantly influenced the development of organic chemistry as regards methods, systematic classification, and theory," said Leopold Ruzicka, the 1939 Chemistry Nobel Laureate, in a 1945 statement.

The creation of fragrances with scents that were previously impossible to achieve using just natural aromatics was made possible by the commercial synthesis of aroma compounds like coumarin and vanillin in the late 1800s, marking the beginning of modern perfumery (Joy PP et al, 2001).

History

Perfumare, which means "**to smoke through**" in Latin, is where the word perfume originates. The skill of creating scents, or perfumery, dates back to ancient Egypt, the Indus Valley Civilization, **Mesopotamia**, and probably Ancient China. The Muslims and Romans polished it even further. The Indian subcontinent's Indus civilization (3300–1300 BC) were part of perfumery and fragrance. Archaeologists believe they have found the world's oldest surviving fragrances at *Pyrgos, Cyprus*, in 2003. The scents have been around for over 4,000 years. The Romans and Muslims refined it much more. The Indian subcontinent's Indus civilization (3300–1300 BC) had perfumery and fragrance. In 2003, archaeologists discovered what they think to be the oldest surviving scents in the world near *Cyprus, Pyrgos*. The odors have been around for almost 4,000 years.

[In May 2018, a reconstruction of the antique perfume rose (“Rodo”) was made for the centennial exhibition **"Countless Aspects of Beauty"** at the Greek National Archaeological Museum. This allowed visitors to experience antiquity through their sense of smell. The ninth-century Arab scholar Al-Kindi (Alkindus) penned the *Book of the Chemistry of Distillations and Perfume*, which contained over a hundred recipes for aromatic waters, salves, fragrant oils, and surrogate versions of expensive pharmaceuticals for counterfeit versions of pricey medications. The book also included 107 recipes and techniques for creating perfumes as well as information on the tools needed to make them, like the alembic. The method that is currently most frequently used to extract oils from flowers is distillation, which was first developed by the Persian scientist Ibn Sina, also referred to as Avicenna. First, he used the rose for his experiments. Prior to his discovery, liquid fragrances were made of potent concoctions of oil and crushed plants or flowers. Because it was more delicate, rose water gained popularity right away. By the end of the seventeenth century, aromatic plant cultivation had spread to Calabria (in Italy) and Sicily's Grasse district in France, providing raw materials for the growing perfume business. The development of distillation technique as well as the raw materials had a big impact on European perfumery and science. The centres of European perfume design and trade are France and Italy (Mookherjee et al, 1990).

Material and Methods

Selection of Plants

1. Lavender plant

Lavender (*Lavandula officinalis* Chaix.), a lovely herb for the garden, is a member of the *Lamiaceae* family. Linalool, Camphor, terpinen-4-ol, beta-ocimene, 1,8-cineole and linalyl acetate, are among its constituents. Depending on the species, different constituents have different therapeutic effects and concentrations. Maximum and excellent skin-absorbing capabilities of linalyl and linalyl acetate are observed during massages that cause a CNS (central nervous system) depression. Linalool has a calming effect, although linalyl acetate shows clear narcotic qualities. Its use in lavender cushion anxiety patients with problems with their sleep pattern may be attributed to these two actions, which also improve well-being, boost mental alertness, and lower anxiety and anger. Although the precise processes underlying lavender oil's antibacterial and antifungal activities against a wide range of microorganisms, particularly in situations where medicines are ineffective, are yet unknown. Regarding its application in aromatherapy, it has a long history of success in treating a variety of conditions, including abrasions, stress, headaches, burns, skin issues, sore muscles, and immune system stimulation. It is also known to promote the creation of new cells. In a double-blind, randomized clinical trial, this oil showed promising results when used to treat primary dysmenorrhea (Jasmanium et al, 2011).



2. Tea tree plant

The tea tree (*Melaleuca alternifolia* Cheel,) is a shrub found in marshy areas. It is a member of the Myrtaceae family and has yellow or purple flowers with needle-like leaves. Owing to its commercial worth, plantations cultivate it. Its primary ingredient is an alcoholic terpene, terpinen-4-ol with a fresh, musty scent. Alpha-sabine, which also has antibacterial and antifungal properties, is the cause of the antiviral activity. The antibacterial properties are attributed to cineole, whereas terpinen-4-ol provides an immune-boosting effect. The tea tree itself has immune-stimulating, antiviral, antibacterial, anti-inflammatory, and insecticidal qualities. A blend of blue gum, lemon, eucalyptus, clary sage, lavender, ginger, rosemary, and Scotch pine is used in aromatherapy to cure a variety of illnesses. Herpes, abscesses, blisters, burns, acne, cold sores, dandruff, bug bites, and greasy skin are all treated with this oil. Additionally, it has to be certified that treat a variety of respiratory-related conditions, including whooping cough, bronchitis, asthma, coughing, and TB. In females, it is also used to treat cystitis, vaginitis, and pruritus and it is used for chickenpox, fever, flu, and colds. Through clinical trial efforts, well-defined investigations on *Melaleuca alternifolia* (tea tree) on herpes have been conducted, and the plant has shown encouraging results.



Formulation of Herbal Perfume

Firstly, we take ethyl acetate as a measured quantity and added lavender oil slowly in it further added T.T oil in less quantity and in last we added ethanol in the formulation.

After completion the formulation filled the air tight container & rest over about 10-15 days for the reaction and stored in aerosol container for future use (Gurib et al, 2006).

Standard for 20 ml formulation

Lavender oil – 8 ml

Ethanol - 8 ml

T.T Oil – 1 ml

Ethyl acetate – Q.s

S. No.	Chemicals	F1	F2	F3
1.	Ethanol	8 ml	9 ml	8 ml
2.	Lavender Oil	8 ml	8.5 ml	10 ml
4.	Ethyl acetate	3 ml	2 ml	1.8 ml
3.	T.T Oil	1 ml	0.5 ml	0.2 ml

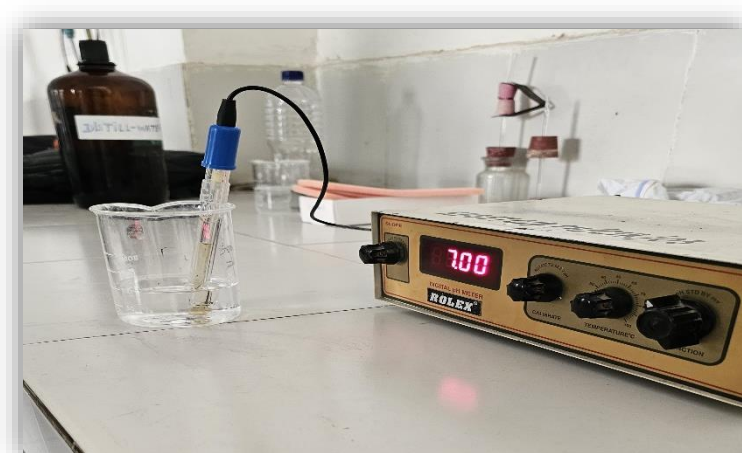
Evaluation of Herbal Perfume

1. Physical Evaluation

- **Homogeneity:-** Using a measuring pipette, take 1 mL of the formula sample, drop it onto the watch glass, and examine it against a black backdrop (Jiangsu et al, 1977).
- **Colour:-** Using a measuring pipette, take 1 mL of the formula sample, drop it onto the watch glass, and examine it against a black backdrop.

2. pH Test

A pH meter was used to do the pH test. The preparation for the perfume is submerged in the electrode. Next, a recording is made of the pH value that shows on the screen. The temperature was measured at room temperature.





3. Fragrance test

scent blotters, or scent test paper, are used for this purpose. To test a perfume's fragrance, a paper is sprayed with perfume.



Steps:-

- Twice, spray the fragrance downward in front of you.
- Quickly slide the blotter over the cloud of scent vapours.
- Breathe in quickly after waving the blotter across your nose.
- To test the card's life cycle, return to it frequently.

Skin test:

Steps:-

- Twice spray onto the back of your hand, being mindful of the proper space between sprays.
- Don't rub in the fragrance; instead, let it dry naturally.
- Without allowing the scent to come into contact with your nose, inhale it.
- Examine your hand as time passes to observe how it changes (Ito et al, 2002).

S.r	F1	F2	F3	Limits
p ^H	6.2	6.5	6.4	6-8

4. Perfume formulation and Hedonic Test

Three scents with varying ratios of ethanol and essential oils were made for this investigation. Eight fragrant oils were combined to create the three perfume samples, and their stability was examined at 250 and 350 degrees Celsius (Mahesh et al, 2008).

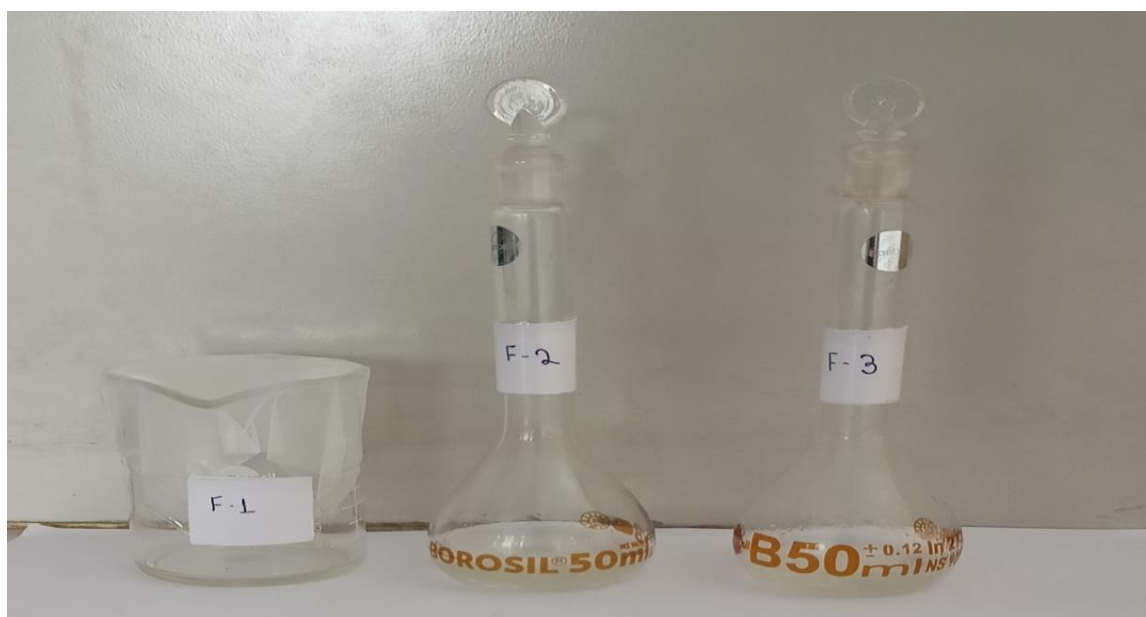
Result & Discussion

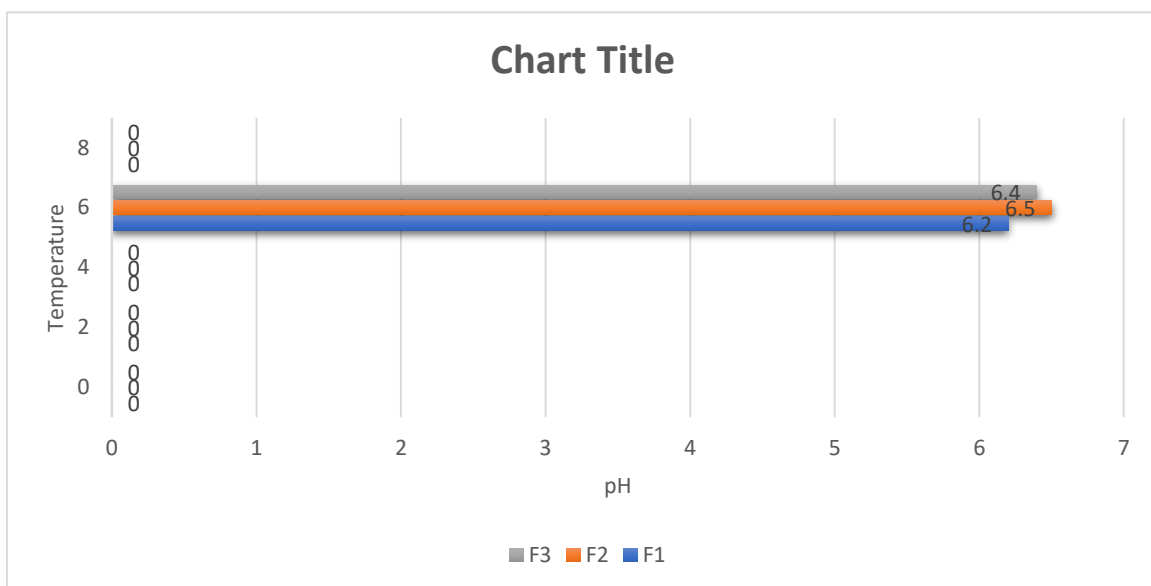
1. Physical Evaluation

S. No.	Characteristics	F1	F2	F3
1.	Colour	Clear	Clear	Clear
2.	Homogeneity	Good	Average	Good
3.	Aroma	Present	Present	Present
4.	Odour	Characteristic order	Characteristic order	Characteristic order

2. p^H Test

The p^H of this mixture was between 6.2 and 6.5, while the range for herbal perfume was between 6 and 8.





3. Fragrance test

The test of scent resistance revealed that, from week 0 to week 6, the full perfume formula continued to smell after four (4) hours. where the generated scent falls between strong and quite strong. The same thing was mentioned: the recipes have about the same scent retention power for around two days.

4. Skin Test

Compatible with all skin types and did not cause any irritation when applied on the skin.

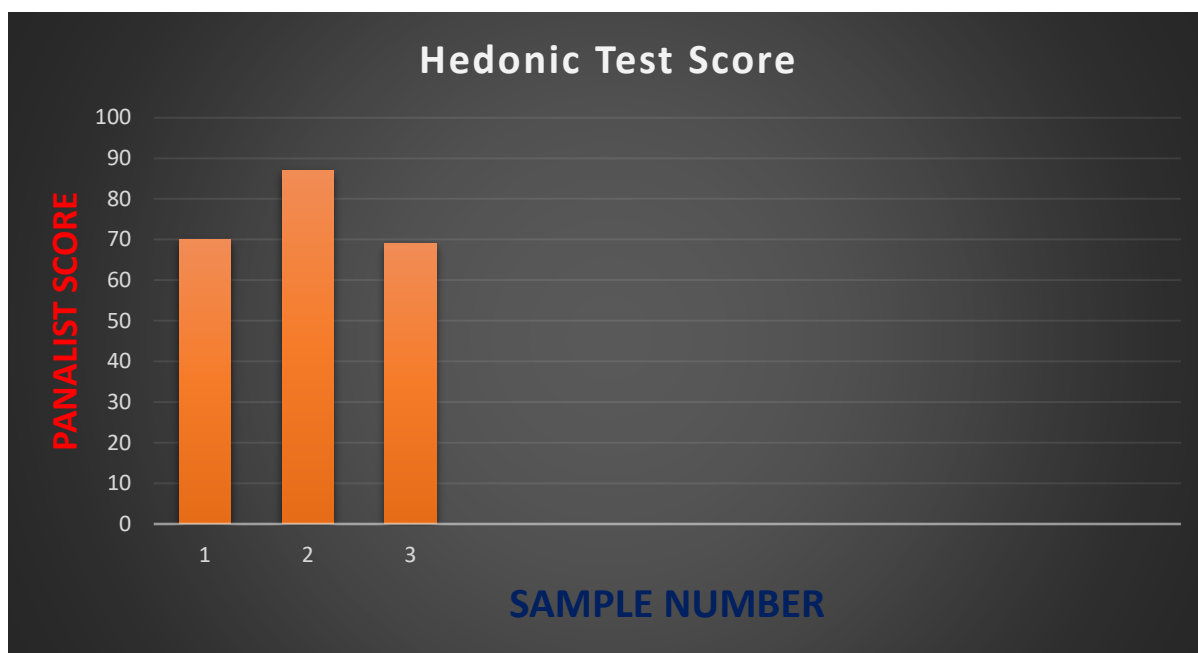
	F1	F2	F3
Fragrance	3.4 hours.	3.2 hours.	4.0 hours.

5. Physical stability Test

The assessment of the formula's general physical stability for a period of seven weeks, both at room temperature and in low temperatures, revealed no separation or shape change. The entire formula applies easily, has a liquid texture, and is not sticky. The fact that the shape stays hard, does not melt or become softer, and is not watery demonstrates that each equation does not exhibit any separation or change, i.e., it has a nice shape. According to research, the three formulations showed stable results for the first eight weeks of the 12-week stability test at room temperature. However, by the 12th week, recipes 2 and 3 showed a somewhat faded color shift (Hara et al, 1995).

	F1	F2	F3
Skin Test	No Irritation	No Irritation	No Irritation

6. Perfume formulation and Hedonic Test



Conclusion

It was surprising to learn that some of the chemicals in perfumes were derived from plants, given their historical and contemporary social effect. This turns out to be the main ingredient in the majority of fragrances used by both men and women in their perfumes and colonges nowadays. The perfume recipe in this post was created with herbal elements like tea tree oil and lavender oil, which don't irritate skin or prolong any negative effects from commercial perfumes. Additionally, it releases a strong scent of tea tree and lavender, which balances smells and makes the user happy. This study demonstrated the value of plant-based essential oils as sources of aromatic components for making regional perfumes and their contribution to the producers' improved standard of living. This is an attempt to investigate the potential of employing plant essential oils in the production of perfume. High consumer satisfaction for using the formed fragrances was indicated by the **panelists'** response to samples of formulated perfumes including *Lavandula angustifolia* and Tea tree, as noted in **F2**.

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