



A CROSS-SECTIONAL STUDY ON HERBAL PRODUCTS CONTAINING TEA TREE OIL VERSUS SYNTHETIC DRUGS IN THE TREATMENT OF ACNE VULGARIS

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ABSTRACT

Background: The main objective of the study is that Tea tree oil is a herbal oil that is extracted from leaves of *Melaleuca alternifolia* by steam distillation, and its super capacious fluid extraction has built a broad range of antimicrobial activities like antibacterial, antifungal, anti-viral properties due to the presence of terpinene-4-ol as the principal constituent.

Method: This study additionally focused on packing of cosmetic products plays a role or not within the mind of the purchaser while making the cosmetic purchase decision. This study will try and apprehend how the male client of the cosmetics get influenced, and for that, what cosmetics firms and retailers do focus on the male clients for their cosmetics.

Result: The survey is regulated by creating a questionnaire in google forms by taking 110 subjects prone to use herbal products. Tea Tree oil scored 77 percent, and synthetic drugs scored 23 percent. Tea Tree oil was the most popular oil compared to other oils or synthetic drugs, or products.

Conclusion: A survey through questionnaire is done in which the herbal oil tops the popularity rank. People mostly use herbal oils to prevent side effects; people switch to others only in non-availability.

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INTRODUCTION

Acne vulgaris is one of the most usual conditions in adolescents. Acne vulgaris affects more than 85 percent of adults, starts in preadolescence, and continuing to adulthood^{1,2}. On the circumstances of drastic development of antibiotics resistance worldwide, a global movement defines of away from the antibiotic monotherapy to reduce the use^{4,6}. Due to the more prone ubiquitous feature of acne in teenagers, there will always be the need for new or novel treatments. In this present situation, Isotretinoin has become the drug of choice to scientists from mild to moderate, moderate to severe acne treatments^{3,7}. It can cause distractions in social life, mental life, emotional life, and psychological disturbances. Acne vulgaris usually occurs due to the development of body androgens. It may appear to anyone regardless of sex^{5,8}.

Advantages of Tea Tree Oil

- Using herbal products like tea tree oil is highly nutrient rich¹⁰.

- These herbal drugs are less expensive economic when compared to conventional products¹⁴.
- Herbal products are ecological in nature and do not cause any side effects¹¹.
- These herbal products will increase efficient nutrient safety, optimum entrapment efficacy, and bioavailability⁹.
- These are also used for heart and liver diseases¹².
- Used as anti-inflammatory, trophodermic, lipolytic, antioxidant, and Immunomodulatory agent¹⁴.
- Using harsh chemicals is also one of the main reasons for not using conventional medicine and replacing with herbal products¹³.

Tea Tree Oil

It is a fossil oil extracted from the leaves of *Melaleuca alternifolia*, a native plant from Australia. It is used in the therapy of acne, tinea, dandruff, burns, vaginal thrush, and arthritis due to its highly curable activity of anti-inflammatory, antimicrobial, antibacterial, antiseptic, and analgesic properties^{15,17}. Clinical investigation with tea tree oil products has shown effectiveness for several superficial diseases including acne, tinea, oral candidiasis, onychomycosis, and molluscum contagiosum¹⁶.

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The volatile nature of tea tree oil (TTO) is only due to the existence of terpenes and about 90 percent. In recent years, *in-vitro* studies have proven that broad-spectrum antibacterial activity is against gram-positive and gram-negative bacteria^{18,21}. One of the studies demonstrated that TTO is robust for mild to moderate skin inflammation and for acne. The TTO composition is collected of terpene hydrocarbons, monoterpenes, sesquiterpenes, and their associated alcohol. The primary active component is terpene-4-ol, with a concentration ranging betwixt 30 to 48 percent. The activity of terpinene-u-ol depends on retain of steadiness at a sufficient release rate^{19,20}.

There are some other constituents like alpha terpenes, gamma-terpinene, and terpinolene. There can be oxidized in the existence of oxygen, light, humidity and high temperature. This degradation can cause skin irritation, odor, color changes and cause allergic reactions²².

Applications of Tea Tree Oil

1. Antioxidant activity: antioxidant derived from the crude TTO. Such as a-terpinene, a-terpinolene, and c-terpinene. Their antioxidant action follows the order: a-terpinene > a-terpinolene > c-terpinene²³.
2. Antibacterial activity: Tea tree oil exhibits a broad spectrum of activity. Tea tree is an essential oil used to develop antibiotic resistance in staphylococcus aureus and escherichia coli. Tea tree oil (*Melaleuca alternifolia*) contains monoterpenes such as terpinene-4-ol (T4O), 1,8-cineole, limonene, p-cymene, and -terpinene has been shown to be effective in controlling a wide range of parasitic infections²⁴.
3. Anti-inflammatory: Tea tree oil is also having the anti-inflammatory properties. In the case of an animal, terpinene-4-ol suppresses inflammatory activity in mouth infections. In humans, tea tree oil is applied topically to reduce the swelling in histamineinduced skin inflammation²⁵.

MATERIALS AND METHODOLOGY

The purpose of this research is to:

1. Understand which kind of cosmetic products people prefer during the purchase?
2. To know whether the purchase of cosmetics by the consumers is affected by which factors?

This study additionally focused on packing of cosmetic products plays a role or not within the mind of the consumers while making the cosmetic purchase decision. This study will try and apprehend how the male client of the cosmetics get influenced, and for that, what cosmetics firms and retailers do focus on the male clients for their cosmetics.

Questionnaire

1. Which is your skin type?
 - A. dry skin
 - B. oily skin
 - C. combination of dry and oily skin
2. Have you had acne/pimples in your past or present?
 - A. Yes, in present
 - B. Yes, in past
 - C. No
3. Are you currently/previously on acne treatment?

- A. Yes, currently / previously on oral medication for acne
 - B. Yes, currently / previously on topical synthetic drugs (Keratolytics or Retinoid drugs) for acne
 - C. Yes, currently / previously on topical natural essential oil-based medication for acne
 - D. Both A & B
 - E. Both A&C
 - F. Not using any treatment for Acne
4. Based on your personal experience or belief, comment on the below "Anti-Acne" properties claimed to be possessed by the essential oils such Tea tree oil
 - A. do not know what essential oils are
 - B. Antimicrobial and antifungal properties
 - C. Anti-oxidant property
 - D. Moisturizing function
 - E. Hypoallergic nature
 - F. Regulates sebum production
 - G. Anti-inflammatory and healing properties.
 - H. minimize the appearance of scars
 - I. non-comedogenic means it does not block or clog pores
 - J. All of the above
 5. Given a choice, which one would you prefer for treating acne?
 - A. Topical product with synthetic drugs
 - B. Topical products with essential oils such as tea tree oil
 - C. Systemic drugs for oral administration
 - D. Combination of oral & topical medications
 - E. prefer not to treat with any
 6. If you were treated for acne with oral/topical synthetic drugs, how long did you continue?
 - A. Not used any synthetic drugs
 - B. Less than 2 weeks
 - C. 2-4 weeks
 - D. More than 4 weeks
 - E. Never treated for Acne
 7. Reason for discontinuation of the treatment with oral/topical synthetic drugs?
 - A. Symptoms of acne were reduced.
 - B. Skin irritation & Dryness
 - C. No Decrease in severity of acne symptoms or their aggravation
 - D. Not treated with synthetic drugs
 8. If you were treated for acne with topical essential oils such as TEA TREE OIL, how long did you continue?
 - A. Not used any topical essential oils such as tea tree oil
 - B. Less than 2 weeks
 - C. 2-4 weeks
 - D. More than 4 weeks
 - E. Never treated for Acne
 9. Reason for discontinuation of the treatment with topical essential oils such as Tea tree oil?
 - A. Symptoms of acne were reduced.
 - B. Skin irritation & Dryness
 - C. No Decrease in severity of acne symptoms or their aggravation
 - D. Not treated with essential oils
 - E. Others
 10. Your choice of topical Anti-acne products is/was based on

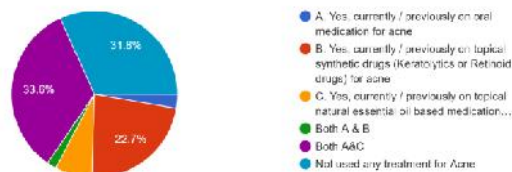
- A. Advertisement
 - B. Based on the prescription of Dermatologist
 - C. Experience-based on friends /relatives
 - D. Personal experience
 - E. Not used any treatments
11. What are your expectation from topical Anti-acne medication?
 - A. Rapid reduction of Acne symptoms
 - B. Lack of skin irritation
 - C. Reduction of blemishes/scars
 - D. All of the above
 12. How satisfied are you with topical products containing synthetic drugs like keratolytics / retinoids / antibiotics?
 - A. Never used & hence not applicable.
 - B. Very Satisfied
 - C. Neutral
 - D. Dissatisfied
 13. How satisfied are you with topical products containing natural essential oils such as jojoba oil?
 - A. Never used & hence not applicable
 - B. Very Satisfied
 - C. Satisfied
 - D. Neutral
 - E. Dissatisfied
 14. Have you ever heard of any ingredients of natural oil like
 - A. Tea tree oil
 - B. Grape-seed Oil
 - C. All of the above
 - D. None of the above
 15. What characteristics are important to you in optimal acne treatment?
 - A. Lack of side effects such as skin irritation
 - B. Reduction of all the symptoms of acne, if not cure
 - C. minimize scars & improve facial appearance
 - D. All of the above

RESULT AND DISCUSSION

The familiarity ranking of all herbal essential oils The survey was regulated by creating a questionnaire in google forms by taking 110 subjects prone to use herbal products. The questionnaire contains 15 questions. This survey is managed in the period from 23-06-2021 to 29-06-2021. Male and females have participated successfully in this cross-sectional study, and the results are analysed through software as follows. The familiarity ranking and scores of the essential oil and synthetic drug on a total score of 110 are below. Based on the questionnaire, Tea Tree oil scored 77 percent and synthetic drugs scored 23 percent. According to the above survey conducted in Hyderabad regarding herbal Products, we came across the following results: Tea Tree oil was the most popular oil compared to other oils or synthetic drugs or products. The respondents' inclination toward a particular oil may be due to its fewer side effects, lesser cost and more visible effects.

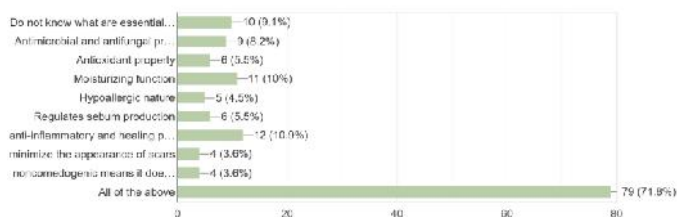
DISCUSSION

Are you currently/ previously on some treatment
110 responses



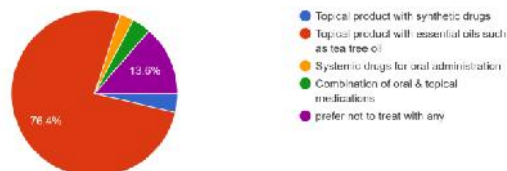
In the above response from the survey, the highest and almost 33.6% population selected natural essential oils of oral and topical administration. Because of the awareness also people are switching to natural products.

Based on your personal experience or belief, comment on the below "Anti-Acne" properties claimed to be possessed by the essential oils such Tea tree oil
110 responses



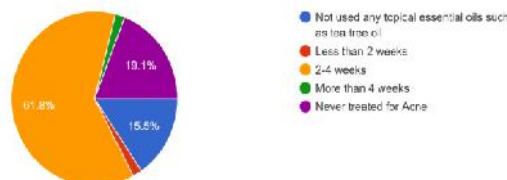
Based on the survey in the above response, tea tree oil is much more effective in treating acne, contributing many properties like antifungal, antimicrobial, antibacterial, anti-inflammatory, non-comedogenic activity, and also helps in sebum regulation which minimizes the appearance of scars. And people do have an appositive perception about essential oils.

Given a choice, which one would you prefer for treating Acne
110 responses

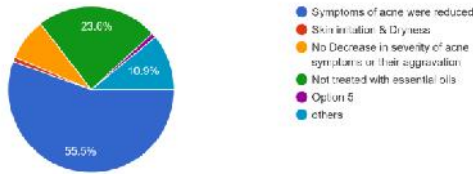


Almost 76.4% of the population picked up natural essential oil. There is an excellent attribute in the population regarding natural products for the treatment of acne.

If you were treated for Acne with topical essential oils such as TEA TREE OIL, how long did you continue ?
110 responses

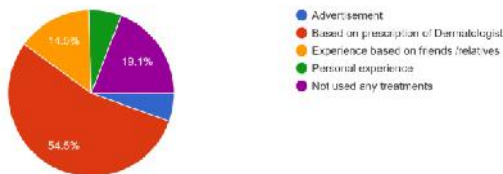


Reason for discontinuation of the treatment with topical essential oils such as Tea tree oil?
110 responses



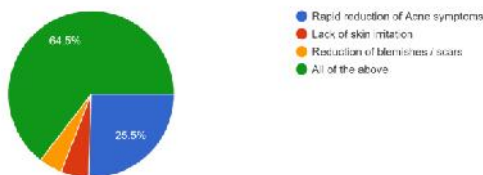
Tea tree oil takes a minimum of 3 weeks to reduce acne. Almost 55.5% population chose that the symptoms of acne were reduced. This shows that tea tree oil is worthwhile in the ministrations of acne.

Your choice of topical Anti-acne products is/was based on
110 responses



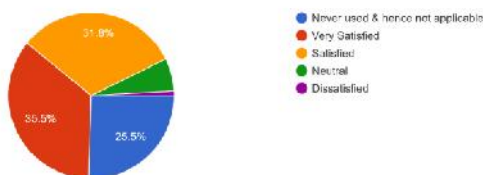
Even dermatologists are prescribing the patients with natural products. Nearly 54.5% of the responses get defined by dermatologists.

What are your expectation from topical Anti -acne medication ?
110 responses



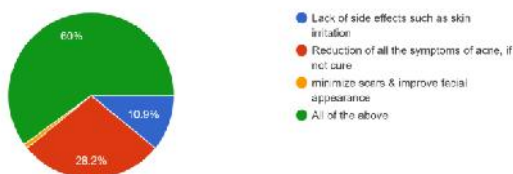
In the anti-acne treatment, almost 64.5% of the population anticipate that the product should be irritation-free, reduce acne symptoms, and decrease scars. These are the aspects that patients are contemplating.

How satisfied are you with topical products containing natural essential oils such as Jojoba oil?
110 responses



Almost 35.5% population selected very satisfied, and 31.6% picked up satisfied with the natural products. These many people are pleased with the genuine product.

What characteristics are important to you, in a optimal acne treatment?
110 responses



People are expecting side effects free medication for the treatment of acne. Almost 60% of the population have fewer

side effects like irritation-free, reduction of all symptoms of acne, minimizing the scars, and improved facial appearance.

SUMMARY OF DISCUSSION

The study was to understand consumer perceptions of herbal essential oils in Hyderabad. The research study is carried out using two overall objectives. The data analysis and conclusion building method used for achieving the research objectives was done using 75 subjects.

The attributes which the respondent suggested on the use of Herbal products are prepared from natural ingredients, free from any side effect, and also fit for health and chemical-free. Most of the Respondents mentioned that herbal oils are made from natural ingredients, so they faced no side effects.

The second objective was related to familiarity and favourability of Herbal oils, particularly Tea tree oil. These segments search values for money, examine the Quality and performance of the products. Tea tree oil in familiarity as per respondents. However, there are high variability products Among respondent who have used it.

As most of the products are cost-effective and are purchased regularly, the respondents have a positive attitude toward herbal oil products. All disagreed with having faced any side effects. Instead, they agreed that herbal oil products are free from side effects and are prepared from natural ingredients.

CONCLUSION

There is no shortage in demand for herbal oils in the market. Consumers are concerned about the health risk and harmful effects of chemical products, forcing them to switch over to natural oils or products. A survey through questionnaire is done in which the herbal oil tops the popularity rank. People mostly use herbal oils to prevent side effects; people switch to others only in non-availability. Therefore, we can say that the herbal oils firm has done its job excellently.

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