

Effect of lemongrass oil on body pain

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ABSTRACT

Introduction: Cymbopogon, also known as lemongrass, is a genus of Asian, African, Australian, and tropical island plants in the grass family. Lemongrass oil is used to relieve muscle pain, externally to kill bacteria, ward off insects, and reduce body aches, and internally to help our digestive system. Lemongrass oil has a light and fresh lemony smell with earthy undertones. The major components of lemongrass oil are myrcene, geranyl acetate, nerol, citronellal, geraniol, neral, and traces of lime and citrate. The findings of this study indicate that lemongrass oil can be used the best for treating body pain.

Materials and Methods: This research was conducted among 30 individuals of different age groups with different pain. They were asked to apply 5 ml of the lemongrass oil daily on their body for about 30 days. The pain of an individual was recorded using pain scale. The pain was measured every week, and then, the results were discussed with proper statistics. **Result:** The mean age for the patients was 45.4 ± 9.37 . The mean value of the pain before using oil is 3.53 ± 1.04 . After the 1st week of usage, the mean value is 3.43 ± 1.07 and the mean value of the pain scale after 2nd week is 2.96 ± 1.0 . The mean value of the pain scale after 3rd week of application is 2.7 ± 1.02 . According to these results, what we analyze is that regular usage of lemongrass oil has more chances in reducing our body pain. **Conclusion:** Lemongrass oil has a significant effect on reducing the body pain. It is also less expensive and has fewer side effects when compared to the other synthetic drugs.

KEY WORDS: Anti-inflammatory activity, Body pain, Cymbopogon, Lemongrass oil, Pain scale

INTRODUCTION

Cymbopogon citratus also known as lemongrass is a tall perennial plant from the family Poaceae. It grows in the tropical and subtropical regions.^[1] It is widely used as a culinary herb in Asian cuisines and also as medicinal herb in India. It has citrus flavor and can be dried, powdered, or used fresh.^[2] It is extracted from the dried leaves of the plant through steam distillation. It also has antifungal properties. Lemongrass essential oil is used to relieve muscle pain, externally to kill bacteria, ward off insects, and reduce body aches, and internally to help your digestive system.^[3] Nowadays, it is used in aromatherapy. Lemongrass oil has a light and fresh lemony smell with earthy undertones.^[4] Not many people know that there are oils that are great for pain relief. Lemongrass oil is one of such kinds. It also has analgesic properties. Earlier researches taken on this topic were based on the antibacterial and antifungal properties of lemongrass oil.^[5] The

major components of lemongrass oil are myrcene, geranyl acetate, nerol, citronellal, geraniol, neral, and traces of lime and citrate. Lemongrass essential oil is a basis for crucial vitamins such as Vitamins A, B1, B2, B3, B5, B6, and C and folate. It also provides essential minerals such as magnesium, phosphorus, manganese, copper, potassium, calcium, zinc, and iron.^[6,7] Pain is something considered as a symptom of an underlying condition. We experience pain due to many reasons such as stress, tension, overuse of our body parts, and minor injuries.^[8] Medicinal plants still remain the traditional medicine in most of the developing countries. Lemongrass plant is one of such kinds.^[9] The antioxidants present in the lemongrass oil act as a pain relieving factor. Many researches were undertaken based on the benefits of lemongrass oil, and especially, its usage was focused to manage depression, anxiety, and pain.^[10,11] Some studies were also undertaken based on the aromatherapy (a method which was used for pain management). Aromatherapy is mostly inhaled and it is been in practice for so long years.^[12] The main aim of this research is basically on the application of the oil on the affected body part which shows a better response on the pain management.

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MATERIALS AND METHODS

This research was conducted among 30 individuals. They belonged to different age groups with different body pain. The pure essential lemongrass oil was commercially bought, and it was given to the individuals. They were asked to apply 5 ml of the lemongrass oil daily on their body for about 30 days. Individuals with mild, moderate, and severe body pain with different age groups who were living only from Chennai were selected for this study. People who consume tablets and apply ointment for their body pain were excluded from the study. We collect the personal information of the patient such as their name, age, sex, type of body pain that they have, and the type of treatment undergone for the pain earlier. We measure the pain using the following pain scale. The pain scale used in this study varies from 1 to 5, being the lowest or no pain to very severe pain, respectively.

We first measure the pain before prescribing the lemongrass oil and observe the changes in the pain using the pain scale [Table 1] after the usage of lemongrass oil. After a week observation, we analyze the reduction in pain. This step is continued for three 3 more weeks and we record the pain scale each time. Finally after 1 month observation, we analyze the data by creating graphs and observe the changes brought by lemongrass oil on body pain. All the results were statistically analyzed for further understanding.

RESULTS

The effect of lemongrass oil on body pain was observed after 30 days of its application. All the results were statistically analyzed and expressed as mean \pm standard error. The mean age for the patients was 45.4 ± 9.37 , and this indicated that people are affected with some kind of body pain after the age of 45. The mean value of the pain before using oil is 3.53 ± 1.04 . Then, the lemongrass oil is prescribed to the people. We observe the changes after each week. After the 1st week of usage, the mean value is 3.43 ± 1.07 and the mean value of the pain scale after 2nd week is 2.96 ± 1.0 . The mean value of the pain scale after 3rd week of application is 2.7 ± 1.02 [Table 2]. According to this study, regular usage of lemongrass oil has more chances in reducing our body pain.

Table 1: Pain scale

Pain scale	1	2	3	4	5
Description	No pain	Mild pain	Moderate pain	Severe pain	Very severe

Table 2: Pain before and after using lemon grass oil

Statistics	Age	Pain before using oil	After week 1	After week 2	After week 3
Mean \pm SD	45.4 \pm 9.37	3.53 \pm 1.04	3.43 \pm 1.07	2.96 \pm 1.012	2.7 \pm 1.02

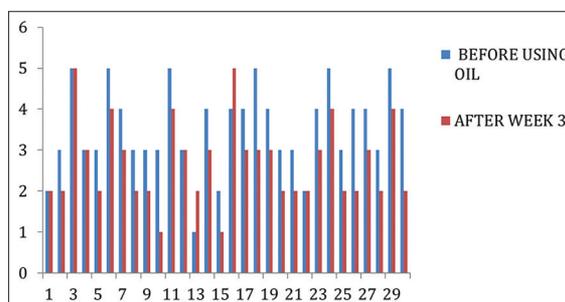
SD: Standard deviation

This graph shows the significant reduction in the pain scale after each week of application of lemongrass oil.

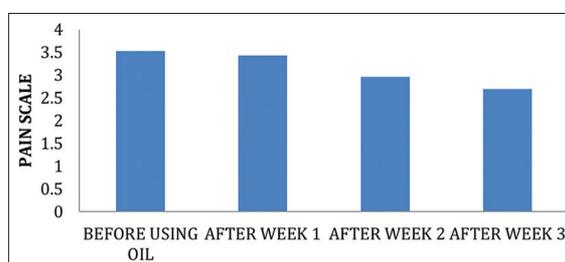
DISCUSSION

After the 1st week of usage, the mean value is 3.43 ± 1.07 , and the individuals were asked to continue the application of lemongrass oil for 2 more weeks [Graph 1]. Then, the changes in the pain scale were observed. The mean value of the pain scale after 2nd week is 2.96 ± 1.01 which shows that there is a significant difference in the pain after the regular usage of the oil. The pain scale after the 3rd week of application showed a better response from the initial stages. The mean value of the pain scale after 3rd week of application is 2.7 ± 1.02 [Graph 2].

Pain is something which is really subjective and the patients may find difficult to communicate. Many traditional methods are done for getting relieved from pain.^[13] Many researches are done based on the antifungal and antibacterial properties of lemongrass. Most of these studies have helped in decreasing the stress and anxiety of the patient.^[14,15] Many methods



Graph 1: Pain chart scale before and after applying lemongrass oil



Graph 2: Pain chart scale for successive 3 weeks

can be used for the pain management and they have shown positive results also.^[16] Modern aromatherapy for allergic and inflammatory diseases has been developed primarily based on clinical trials of EOs by several pioneers.^[16] The elucidation of the pharmacological functions of lemongrass EO *in vivo* may provide a rationale for the clinical application of this EO as an antiallergic and anti-inflammatory substance. The studies reveal that citrate component present in the lemongrass has anti-inflammatory activity.^[17,18]

According to these results, the regular usage of lemongrass oil has more chances in reducing our body pain. It is also less expensive and has fewer side effects when compared to the other synthetic drugs.^[19] This study shows that there is a gradual decrease in the pain after the usage of lemongrass oil.

CONCLUSION

In this changing global scenario, people have started using herbal products for all their needs. Over the years, the essential oils have attracted much attention in nutritional and cosmetic industries due to their antimicrobial and antioxidants. It is also less expensive and has fewer side effects when compared to the other synthetic drugs. Therefore, the information will help scientists and researchers to understand the importance of lemon grass oil in reduction of body pain and to elucidate the molecular mechanism actions.

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