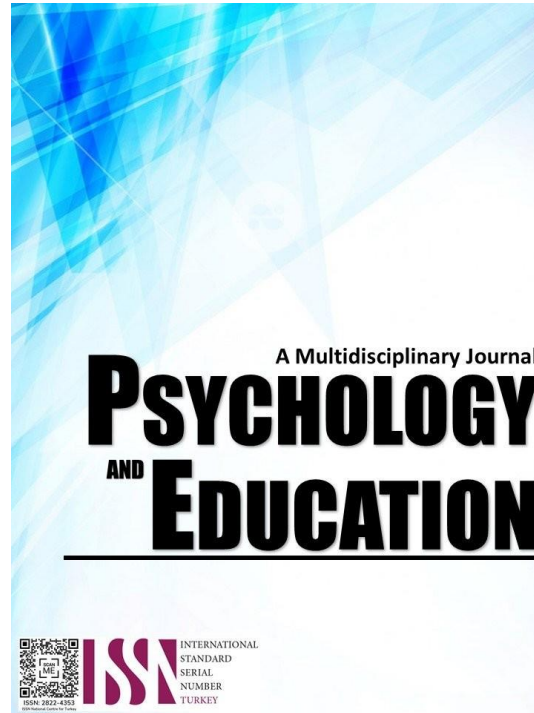


**THE FEASIBILITY OF CYMBOPOGON
CITRATUS (LEMONGRASS) LEAVES
EXTRACT AS PERFUME**



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The Feasibility of *Cymbopogon Citratus* (Lemongrass) Leaves Extract as Perfume

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Abstract

Lemongrass leaves extract as a perfume provides consumers with a fresh lemony and grassy scent. This study focused on the feasibility of *Cymbopogon citratus* (Lemongrass) leaves extract as a perfume in terms of smell longevity and odor strength and determine the respondents' responses toward the fragrance using the perfume. The perfume was attained using the extracted lemongrass fragrance oil, fixative, DPG, perfume-grade ethyl alcohol, and distilled water. A descriptive survey research design was employed in this study to determine the responses of 20 respondents using the perfume of lemongrass leaf extract. According to the data gathered, all of the respondents aged around 10-30 are regular users to wear perfumes. Most (75%) of the respondents were female perfume users. In line with the results, lemongrass leaf extract as a perfume in terms of smell longevity and odor strength garnered a mean of 3.4 and 3.3, respectively, and with an overall mean of 3.3, which denotes Agree which indicated moderate smell longevity and odor strength. Lastly, the respondents perceived good responses toward lemongrass perfume with a mean of 3.1 which denotes Agree. Thus, based on the data and results garnered, lemongrass leaf extract was feasible as perfume.

Keywords: *lemongrass, feasibility, perfume*

Introduction

Perfume is a substance that emits and diffuses a pleasant and fragrant odor (Salvador-Carreno & Chisvert, 2005). It can influence how people may respond to aspects around them with its mood-enhancing effects. Because the human sense of fragrance is physically and neurologically near to the hippocampus of the brain, the scent has a significant influence on a consumer's cognition, emotional response, attitude, memory, and behavior (Kim, Yang & Kim, 2018). Perfume can similarly benefit people with bad odors and give prominence to refreshing scents. Various chemical compounds including Citral are known for their pleasant odors utilized for perfumes. Natural fragrances of native plants like lemongrass can emit a pleasant smell without the due process of expensive luxury spending.

Lemongrass is a tropical plant; it is accessible and can be grown in a warm environment. It belongs to the Poaceae family and is a highly valued grass renowned for its aromatic traits all over the world (Lal, Baruah, Begum & Pandey, 2020). The presence of mainly citral components present in lemongrass pushes its uses in perfumery industries for its refreshing scent. Citral is a combination of neral and geranial that are monoterpene aldehydes where common odors come from (Maarse, 1991). This herb is widely used for its production of citral, a crucial component of essential oils used in the chemical industry (Ming, Figueiredo, Machado & Andrade, 1995). It has a lemony odor due to its higher content of aldehydes (Wifek, Saeed,

Rehman & Nisar, 2016). Myrcene, limonene, and citral are scent ingredients present in lemongrass essential oil (Aluyor & Oboh, 2014).

The lemongrass essential oil is also used for aromatherapy to help alleviate stress, anxiety, and depression (The Healthline Editorial Team, 2020). Most perfumes may have proven to resist unpleasant odors and help relieve stress and tension, but are mostly quite expensive. The cost of perfumes is driven mainly by its rare ingredients. Their ability to yield a fresh and light scent can provide consumers with an alternative way of using perfume without spending costs while still enhancing cognitive function. Further, this study was made to investigate the feasibility of lemongrass leaf extract as perfume.

Literature Review

Cymbopogon citratus (Lemongrass) leaves extract is essential for a more affordable, and healthy lifestyle. Its utilization as a perfume provides consumers with a fresh, lemony, and grassy scent. *Cymbopogon citratus* is a plant with diverse health benefits including relieving stress as it promotes feelings of calmness (Ranade & Thiagarajan P., 2015; Kapoor, 2020). The *Cymbopogon citratus* is a tropical perennial plant member of the Poaceae family, its essential oil is commonly used for fragrance in perfumes to mask bad odors (Wifek et al., 2016).

Some studies found lemongrass to contain similar chemical constituents to common perfumes.

Lemongrass is a tall and perennial grass plant with big striped leaves with an uneven edge. It is mainly comprised of the presence of high-content citral components extracted from its leaves (Wifek et al., 2016). Citral can be produced from lemongrass, it is a compound and an essential ingredient in the perfumery industry (Ming et al., 1995). Present in lemongrass essential oil are myrcene, limonene, and citral as the main component (Aluyor et al., 2014; Majewska & Tarnowska, 2019). Obtained from lemongrass leaves are chemical compositions that also have reported the plant to comprise compounds of esters, aldehyde, ketones, and terpenes (Ameh, Achika, Bello & Owolaja, 2021). This sweet and lemony fragrance contains a calming character (Wifek et al., 2016). In aromatherapy and spas, lemongrass essential oil is used to help alleviate stress, anxiety, and depression for its calming properties (Shah, Shri, Panchal, Sharma, Singh & Mann, 2011; Alpha Aromatics, 2020). The smell develops emotions of calmness and relaxation through its anti-depressant's properties.

Lemongrass leaves extract as a perfume can be an alternative to expensive commercial fragrances. It is affordable in the market. It can help mask bad odors with its fresh and light smell. The plant is accessible to the consumers, in the same sense that it can grow well in sunny warm, humid tropical conditions (Wifek et al., 2016). In addition, the product's packaging vitally influences the consumers' approach toward the perfume (Ahmed et al., 2014). Thus, the packaging of the perfume is developed while considering the modern trends to appeal to consumers.

Methodology

The perfume was attained using the extracted lemongrass fragrance oil, fixative, DPG, perfume-grade ethyl alcohol, and distilled water. A descriptive survey research design was employed in this study to determine the responses of respondents using the perfume of lemongrass leaf extract. A total of 20 respondents were selected to participate, aged 10-30; women and men. The modified questionnaire from Retiveau (2004) consists of items that determined the feasibility of lemongrass leaves extract as a perfume in terms of its smell longevity and odor strength, and responses of respondents on its fragrance. Mean and percentage were used as the statistical tools to interpret the gathered data.

Results and Discussion

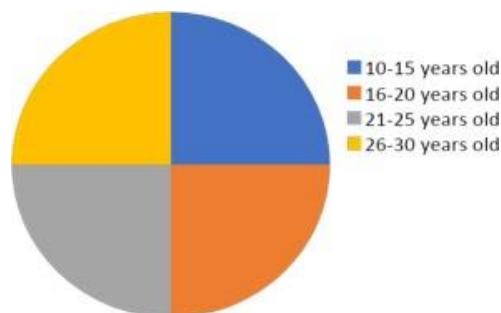


Figure 1. Age demographic profile of 20 respondents.

Figure 1 reveals the age demographic profile of the respondents, among the 20 respondents, 25% each are aged 10-15, 16-20, 21-25, and 26-30. There are no minimum or maximum age recommendations for using perfume, yet most people experience fragrance at the age of 11-12 (pre-teen years). At this age, they become more self-conscious about their appearance (Scent Urban, 2023). Even older people, aged 55 and over, are being of the most prominent consumer groups of perfume (Cision, 2014). Thus, the age range 10-30 years old are all perfume consumers and users.

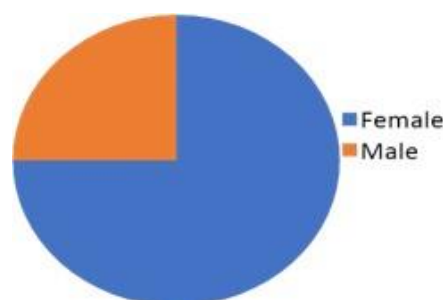


Figure 2. Gender demographic profile of 20 respondents

Figure 2 translates the gender demographic profile of the respondents, 25% are male and 75% are female adding up to a total of 100%. This suggests that most of the respondents were female. In line with the supplementary questions asked, female respondents mostly appeared to use perfumes more regularly than male respondents. To support this, women consume



the most fragrance products by volume being one of the most prominent consumer groups (Cision, 2014).

Table 1. Feasibility rating of *Cymbopogon citratus* (Lemongrass) leaves extract as a perfume in terms of the smell longevity and odor strength.

| | Statements | Mean | Description |
|--------------------|---|------|----------------|
| A. Smell Longevity | | | |
| 1. | The smell of perfume lasts for 5-6 hours or longer. | 3.5 | Strongly Agree |
| 2. | I find that after wearing this perfume for a while, I can still smell it. | 3.6 | Strongly Agree |
| 3. | Its scent lasts even after I do sports or hard activities. | 3.3 | Agree |
| 4. | Its scent longevity is the most important when I wear this perfume. | 3.3 | Agree |
| 5. | I can spray this to my hair and clothing to prolong its scent longevity. | 3.4 | Agree |
| | Overall Mean | 3.4 | Agree |
| B. Odor Strength | | | |
| 1. | The smell of perfume is moderately strong with pleasant scent. | 3.5 | Strongly Agree |
| 2. | The perfume has subtle fragrance. | 3.4 | Agree |
| 3. | The perfume has natural fragrance like floral scent. | 3.3 | Agree |
| 4. | It has definable fragrance. | 3.3 | Agree |
| 5. | Its base scent appeals to me the most. | 3.3 | Agree |
| 6. | Its scent prevents body odor. | 3.4 | Agree |
| 7. | It smells nice to others. | 3.4 | Agree |
| | Overall Mean | 3.3 | Agree |
| | Grand Mean | 3.3 | Agree |

Table 1 conveys the results of the survey on the longevity of the perfume. Implying that the perfume is feasible in terms of smell longevity, statement 2 (*I find that after wearing this perfume for a while, I can still smell it.*) garnered the highest mean of 3.6 which translates to Strongly Agree. While statements 3 (*Its scent lasts even after I do sports or hard activities.*) and 4 (*Its scent longevity is the most important when I wear this perfume.*) garnered the lowest mean of 3.3 which translates to Agree, denotes that the smell longevity of the perfume is feasible as its scent lasts even after exerting energy in doing hard activities such as sports. Overall, the feasibility rating of Lemongrass leaves extracts as a perfume in terms of the smell longevity garnered a total of 3.4 overall mean denoting Agree. This is supported by the statement of Wifek et al (2016) that the essential oil of lemongrass is commonly used for fragrance in perfumes to mask bad odor. This implies that the perfume is significantly feasible in terms of smell longevity given that it gathered excellent responses.

Moreover, it also shows the results of the survey on the odor strength of the perfume. Statement 1 (*The smell of perfume is moderately strong with a pleasant scent.*) gathered the highest mean of 3.5 which translates to Strongly Agree, this implies that the

perfume is feasible in terms of odor strength as it is adequately strong but still gives off a pleasant scent. Statements 3 (*The perfume has a natural fragrance like floral scent.*), 4 (*It has definable fragrance.*), and 5 (*Its base scent appeals to me the most.*) gathered the lowest mean of 3.3 which translates to Agree, that implies that the perfume is feasible in terms of odor strength and that its natural base fragrance is significantly evident despite being adequately strong. Overall, the feasibility rating of lemongrass leaves extracts as a perfume in terms of the odor strength garnered a total of 3.3 overall mean denoting Agree. The lemongrass has sweet and lemony fragrances that contain calming character. It can help to eliminate bad odors with its fresh and light smell (Wifek et al., 2016). This implies that the perfume is suggestively feasible in terms of odor strength given that it met excellent responses.

Furthermore, the feasibility rating of Lemongrass leaves extracts as a perfume in terms of the smell longevity and odor strength garnered an overall grand mean of 3.3 which denotes Agree. To support this, lemongrass has a refreshing yet soothing and smoky citrus aroma adding a satisfying fragrance, and it also purifies the skin and eliminates odour – causing bacteria (Parks London, 2023). These findings suggest that lemongrass leaves extract as a perfume has moderate smell longevity and odor strength.

Table 2. Respondents' responses toward *Cymbopogon citratus* (Lemongrass) leaves extract as a perfume.

| | Statements | Mean | Description |
|-----|---|------|-------------|
| 1. | I can wear this fragrance in my daily routine | 3.3 | Agree |
| 2. | This fragrance makes me feel-fresh and clean. | 3.1 | Agree |
| 3. | This fragrance makes me feel-fresh and clean. | 3.3 | Agree |
| 4. | I wear the fragrance for my own satisfaction. | 3.2 | Agree |
| 5. | I can wear this fragrance on special occasion. | 3 | Agree |
| 6. | When I wear this fragrance, I feel more confident about myself. | 3.2 | Agree |
| 7. | Wearing this fragrance makes me feel more attractive. | 3.2 | Agree |
| 8. | The fragrance has excellent packaging | 3.3 | Agree |
| 9. | This fragrance enhances my personality. | 2.8 | Agree |
| 10. | I don't care much how the fragrance smells as long as people around me like it. | 3 | Agree |
| | Overall Mean | 3.1 | Agree |

Table 2 translates the results of the survey toward *Cymbopogon citratus* (Lemongrass) leaves extract as a perfume. Statements 1 (*I can wear this fragrance in my daily routine*), 3 (*I wear the fragrance because I like to smell good.*), and 8 (*The fragrance has excellent packaging*) have the highest mean of 3.3, which denotes agree. As stated by Wifek

et al (2016), the lemongrass itself has a sweet and lemony fragrance that contains calming character which is agreed by most respondents. Two respondents share that:

“Yung scent is bagay pang-daily, hindi matapang masyado, fresh lang siya”, “Gwapo iyang design, eye-catching”, “Sa isang tingin palang makita na nimo (na perfume) ang product” and “Dili sakit sa ilong, iyang smell kay natural”.

This result implies that lemongrass leaves extract as a perfume can be worn to smell good and on daily routines. Whereas, statement 9 (*This fragrance enhances my personality.*) has the lowest mean of 3.1, which denotes Agree. Some scents can have a great effect on your mood or personality because your sense of smell is very closely linked to the part of the brain that is responsible for serotonin and memory (Perfume Direct, 2022). Yet, the lemongrass perfume can enhance the respondents' mood or personality. This suggests that lemongrass leaves extract as a perfume can influence one's temperament. Furthermore, the overall mean garnered on the results of the survey is 3.1, which denotes agree. In addition, respondents stated they felt confident that they smell good while wearing the perfume daily as a response to agreeing to the statements. The lemongrass fragrance essential oil is commonly used in perfumes to mask bad odors and thus contribute to users' state of fragrance. Hence, these results suggest that the respondents' likelihood of the perfume was satisfactory in line with the study of lemongrass leaves extract as a perfume.

Furthermore, the study recommends other multi-functional uses of the lemongrass fragrance oil, such as its effectivity as scented massage oils or as scented bar soaps or body wash.

Conclusion

The study concludes that the lemongrass leaf extract is feasible as perfume. The 20 respondents aged 10-30 are regular users to wear perfumes. The majority of respondents is female users. The conducted survey accumulated mean of 3.4, and 3.3, respectively for smell longevity and odor strength with an overall mean of 3.3 which implies agree, which indicates moderate smell lasting and odor strength. The respondents perceived good responses towards the lemongrass perfume with a mean of 3.1 which indicate that the respondents are satisfied with wearing the lemongrass perfume.

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