

Subjective Effects of Lemon Seed, Rose and Lavender Essential Oils on Humans: A Case Study from Two Different Age Groups

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Abstract: Plant volatile oils have been used for different purposes for years, especially in the scientific and commercial areas. Among the major areas of their uses were the cosmetic, pharmaceutical and food industries, and the aroma/phyto therapeutic applications. The lemon seed, rose and lavender oils were the most commonly used oils and their effects on humans also differed individually. In this study, effects of these essential (volatile) oils on two age groups, 17-24 and 25-40 were thus investigated. The study was conducted on 80 people for one hour and the effects were evaluated using questionnaires. We used SPSS method for statics. In 17-25 age group, lavender oil caused drowsiness and weakness in 60% and 50% of respondents respectively, and also some mild giddiness, nausea, headache and dizziness. In 25-40 age group it caused giddiness and weakness in 40% respondents, and also gave mild vigor and tranquility. Lemon seed oil caused drowsiness in 85%, weakness and headache in 50%, and clear sensation in 55% of the respondents from 17-24 age group, while in 25-40 age group it caused clear sensation in 80% of respondents, and gave the mood of tranquility in 70% and happiness in 60%. However, rose oil demonstrated more intense effects on people, causing drowsiness and nausea in 55%, weakness and headache in 50%, and also giddiness, face flush and palpitation in 17-24 age-group-respondents. In 25-40 age group it caused drowsiness and nausea in 40% while it gave happiness and tranquility in 60% of respondents. Study results indicated that effects of different types of volatile oils on humans vary based on the age groups. So, the preference of essential oils in our daily lives is implied to have great importance. Therefore, further studies on the subject should be conducted to better emphasize the choice and use of these oils based on the age groups.

Keywords: Lemon seed oil, Rose oil, Lavender oil, Subjective, Human

1. INTRODUCTION

The natural treatment methods based on the use of aromatic or essence oils from plants are called “aromatherapy”. The use of these oils covers wide range of areas such as from cosmetics industry to the medical applications. Their use also extend back to around 5000 BC [1]. The term 'aromatherapy' was first introduced by the French biochemist Renee-Maurice Gattefosse in 1937. Lately, more studies have been conducted on the essential oils and number of these studies is also ever-increasing [2].

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In our daily lives, we experience the effects of aromatherapy unconsciously, for instance, with soil smell after rain and smell of fresh bread etc. However, systematic aromatherapy application is based on the principle that plants are employed in treatment using their high-density essential oils and smells. In aromatherapy born from the ancient Egypt and Indian civilizations centuries ago, essential oils were often combined with the therapeutic effect of massage [3-4].

More than 60 different types of medicinal herbs have been used in aromatherapy. The most well-known aromatic plants include lavender oil, sweet orange oil, rose oil, jojoba oil, olive oil, geranium, sage, juniper, jasmine, sandalwood, eucalyptus and various incense. It has been reported that aromatherapy maintains the body and soul balance, provides the relaxation with pleasant odor, reduces the anxiety, fear, pain, nausea and vomiting, and increases the sense of well-being [5-7]. The only substance that able to pass through brain membrane is volatile oils. Thus, this transition has been very important in terms of treatment. For example, orange oil inhaled by smell gives cheerfulness, refreshes mind and relaxes depression, lavender oil relieves insomnia and headache, and rose oil removes postpartum depression, regulates menstrual period and relieves menopause complaints [8].

Pure essential oils have various effects on living organisms. They may aid in emotion and emotion-state control, function as anxiolytic [9] and antidepressant [10], and provide arousal [11], memory enhancement [12] and correction of cognitive impairment in dementia-related illnesses [13]. These effects are mediated by linkages extending to limbic system and hypothalamus through major olfactory tract, tractus olfactorius [9,14]. Natural rose oil includes ingredients like citranellol, geraniol, nerol, eugenol, methyl eugenol and phenylethyl alcohol [15]. Rose essence oil is also used for its calming effect and skin care in addition to its good fragrance [16,17]. Natural lavender oil contains linalool, linalyl acetate, lavandulyl acetate, Z-ocimene and caryophyllene. Lemon seed oil includes D-limonene as terpene [18].

Thus, effects of essential oils on humans have been important. In this regard, this work was attempted to investigate the effects of lavender, rose and lemon seed oils on two different age groups.

2. MATERIAL and METHODS

In this work, the effects of essential oils on two different age groups 17-24 and 25-40 were investigated. Study was performed on 80 people for one hour in the morning at 9:30-10:30 am. Each individual was tested on a separate day but at the same time. On the first day, rose oil was dropped in the room and subjects were exposed for one hour. Similarly, on the second and third days respectively, subjects were exposed to the lavender and lemon seed oils for one hour. Then, results were evaluated using questionnaires. Respondents were surveyed about 14 questions about fatigue, facial flushing, drowsiness, dizziness, giddiness, nausea, headache, palpitation, hallucinations, visual disturbances, happiness, clear sensation, peace and vigourity. They were then asked to assess the questions on a scale of 1 to 10. Values 1-5 were classified as too low, values 5-7 were as medium strength and values 7-10 were as very strong for the tested effects. Subsequently, all questionnaires were re-evaluated based on the effects seen as either "with-impact" or "without-impact". The surveyed questionnaire is given in Table 1.

Table 1. Surveyed Questionnaire

Essential oil	Lavandula		Lemon Seed		Rose					
Age	17-24				25-40					
Symptoms seen	RATING									
	1	2	3	4	5	6	7	8	9	10
Perception openness										
Fatigue										
Sleeping state										
Dizziness										
Drowsiness										
Nausea										
Headache										
The palpitation										
The hallucination										
Facial flush										
Happiness										
Peace										

3.RESULTS

3.1. Lavender Oil

Lavender oil is known to be a good antiseptic and it is also reported to maintain the body and soul balance, help the relaxation with pleasant odor, relieve the anxiety, fear, pain, nausea and vomiting, and increase the sense of well-being. Herein, effects of lavender oil on 17-24 and 25-40 age groups seemed to differ from each other. In questionnaires responded by 17-24 age group, from 40 people, %60 respondents reported for drowsiness and %50 respondents reported for fatigue. Besides, these effects were also seen in the same people. In addition, lavender oil also caused some mild giddiness, dizziness and headache in the subjects. No other adverse effects like facial flushing, palpitation, nausea, hallucinations and visual disturbances were observed, and young group did not also see positive effects such as peace, vigourity and clear sensation. On the other hand, in 25-40 age group, the intensity of effects decreased, out of 40 respondents, %40 observed drowsiness and fatigue, and %23 reported for vigourity and peace [Table 2].

Table 2. Analysis Results for Lavander Oil

	17-24				25-40			
	<5	%	>5	%	<5	%	>5	%
Perception openness	36	90	4	10	38	95	2	5
Fatigue	20	50	20	50	24	60	16	40
Sleeping state	24	60	16	40	20	50	20	50
Dizziness	40	100	0	0	38	95	2	5
Drowsiness	24	60	16	40	24	60	16	40
Nausea	36	90	4	10	32	80	8	20
Headache	32	80	8	20	34	85	6	15
The palpitation	36	90	4	10	40	100	0	0
The hallucination	36	90	40	10	40	100	0	0
Facial flush	32	80	8	20	40	100	0	0
Happiness	36	90	4	10	40	100	0	0
Peace	32	80	8	20	31	77	9	23
Vigor	32	80	8	20	31	77	9	23

Lavender essential oil contains 23.29% camphor, 10.87% phencon, 4.07% eucalyptol, and 1.5% linalool and linalyl acetate [19]. Thus, negative effects like dizziness, nausea and giddiness, particularly in the young age group could be caused by these oil ingredients. On contrary, adverse effects in the middle age group are reduced and relaxing effects appear.

3.2. Rose Oil

Pure rose oils have various effects on the emotion and emotion-state control, anxiety, depression, arousal, memory enhancement and in amelioration of cognitive impairment in dementia. Some essential oils applied via respiration and orally were also reported to reduce the symptoms and strengthen the memory in neurodegenerative diseases like Alzheimer (7,14). In this work, different effects were observed in the studied age groups. In 17-24 age group, out of 40 people, %55 respondents had an intense nausea and drowsiness while %50 respondents reported for headaches and weakness. Besides, respondents also reported for some mild face flushing, giddiness and palpitations. On the other hand, in 25-40 age group, only %40 subjects -from 40 respondents- had these negative effects. Besides, rose oil essence also created happiness and peace in %60 subjects [Table 3].

Natural rose oil contains substances like citranellol, geraniol, nerol, eugenol, methyl eugenol and phenylethyl alcohol [15]. 85% of these substances fall under a group called citronellal, consisting of citronellal, neral and nerol. This group has allergic effect and also has soothing effect especially in the intense environments (environments with high temperature, humidity etc.). Thus, effect of citranellol has become a major cause of adverse effects especially in young people, whereas phenylethyl alcohol increased the peace and happiness in the middle age group.

Table 3. Analysis Results for Rose Oil

	17-24				25-40			
	<5	%	>5	%	<5	%	>5	%
Facial flush	28	70	12	30	40	100	0	0
Weakness	20	50	20	50	32	80	8	20
Sleeping state	18	45	22	55	24	60	16	40
Dizziness	22	55	18	45	32	80	8	20
Clear Sensation	26	65	14	35	32	80	8	20
Nausea	19	45	21	55	24	60	16	40
Headache	20	50	20	50	32	80	8	20
The palpitation	30	75	10	25	40	100	0	0
The hallucination	36	90	4	10	40	100	0	0
Disorder in sight	36	90	4	10	10	100	0	0
Happiness	40	100	0	0	16	40	24	60
Peace	40	100	0	0	16	40	24	60
Vigor	40	100	0	0	36	90	4	10

3.3. Lemon Seed Oil

Lemon seed oil has been a natural antioxidant source since it is rich in vitamin C. This effect is especially useful in eliminating mental and physical fatigue. In questionnaires responded by 17-24 age group, from 40 people, %85 respondents reported for drowsiness because of its relaxation effect while %50 respondents reported for fatigue. Besides, %55 respondents also reported for clear sensation and vigourity. On the other hand, in 25-40 age

group, results were quite different; no negative effect was reported by respondents, on contrary, %72 people had clear sensation, %63 people had peace and %57 people had happiness [Table 4].

Lemon seed oil contains 34,34-43,59% linoleic, 20,65-28,48% oleic and 23,72-30,33% palmitic acids. These fatty acids serve as energy storage facility. Especially they help to improve cell functions; in case of deficiencies the depression and behavioral disorders can occur. Thus, effects of their odor on humans emerged quite clearly.

Table 4. Analysis Results for Lemon Seed Oil

	17-24				25-40			
	<5	%	>5	%	<5	%	>5	%
Clear Sensation	19	47	21	53	11	28	29	72
Weakness	20	50	20	50	40	100	0	0
Sleeping state	6	15	34	85	28	70	12	30
Dizziness	38	95	2	5	40	100	0	0
Perception openness	24	60	16	40	40	100	0	0
Nausea	32	80	8	20	40	100	0	0
Headache	20	50	20	50	32	80	8	20
The palpitation	40	100	0	0	40	100	0	0
The hallucination	40	100	0	0	40	100	0	0
Disorder in sight	40	100	0	0	20	50	20	50
Happiness	32	80	8	20	17	43	23	57
Peace	30	75	10	25	15	37	25	63
Vigor	19	47	21	53	32	80	8	20

4. CONCLUSION

Present study has demonstrated the effects of essential oils on different age groups and these effects on the subjects differed individually. The active ingredients of tested oils led more intense negative effects the on the 17-24 age group. In 25-40 age group, these oils caused negative effects as well as positive subjective effects like happiness, peace, vigourity and clear sensation. The presence of lavender oil in the environment brought about its effects as dizziness and giddiness, while rose oil caused the effects of nausea, facial flushing and palpitation. Besides, lemon seed oil has no negative effects, other than drowsiness and fatigue, on the 17-24 age group, while in 25-40 age group the effects have been more positive, with responses about increased clear sensation, happiness and peace.

Thus, preference of essential oils being used in our daily lives is of great importance. So, further studies should be conducted to better elucidate the effects of those essential oils on individuals/age groups as well as to understand their health implications on humans.

5. REFERENCES

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