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**AN ECO-FRIENDLY, VIABLE AND INNOVATIVE APPROACH TO EXTRACT
THE FRAGRANCE IN *ROSA RUBIGINOSA* AND *LILIUM CANDIDUM***

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ABSTRACT

Floral volatile are of high attention since antiquity. Indeed, they are heavily used in perfumes, cosmetics, flavorings and medicinal applications. However, their primary function is to mediate ecological interactions between flowers and a diverse array of visitors, including pollinators, florivores and pathogens. As such, they ultimately ensure the plants reproductive and evolutionary success. To date, over 1700 floral volatile organic compounds (VOCs) have been identified. Interestingly, they are derived from only a few biochemical networks, which include the terpenoid, phenylpropanoid, benzenoid and fatty acid biosynthetic pathways. Fragrance from rose & lily extracted for possible utilities by leaching from methanol and ethanol.

Keywords: Perfume, Aroma, Floral, Pathogens, Flowers

INTRODUCTION

For centuries, perfumes are a combination of natural ingredients, mainly of plant origin. Flowers of many plant species produce a scent. Even if odors and the sense of smell remained mysteries for centuries, the link between humans and scent was always direct, sensational and

emotional. The influence of fragrances such as perfumes and room fresheners on the psycho-physiological activities of humans has been known for a long time, and its significance is gradually increasing in the medicinal and cosmetic industries. In aromatherapy, fragrance substances

(aroma/odor/scent) from various natural sources have been used for the treatment of various disorders [1]. A perfume is a substance that emits and diffuses a fragrant odor. It is a very volatile liquid distilled from a plant part. The essential 'plant distillates' (essential oils) interrelate with the human body by four distinct modes of action - pharmacological, physiological, psychological and spiritual. The use of perfume in human culture has a very long story. Traces of scented substances used to make oneself more charming and attractive, to mask unpleasant and offensive odors, or to make offering to god, have been recorded in almost all ancient civilizations [2-6].

This aroma of the scent is typically a complex mixture of low molecular weight compounds emitted by flowers into the atmosphere which basically depends on its structure, colour and odour of the natural flowers. Fragrance in the garden is as essential as color. It is said that of the five senses, smell is the one with best memory. Some of the greatest perfumes are extracted from the best smelling flowers. Natural scents of flowers are often used for healing & relaxing purpose in aroma therapy.

Perfumes are used dawn-dusk and Birth-Death. Plants were primary source of perfumes in the all over the world. Nature's greatest gift to humans is the fragrance from flowers. Flower scent is a composite

character determined by a complex mixture of low-molecular-weight volatile molecules, classified by their biosynthetic origin into terpenes, phenylpropanoids and fatty acid derivatives [7].

A perfume is a substance that emits and diffuses a fragrant odour. It is a very volatile liquid distilled from a plant part. The essential 'plant distillates' (essential oils) interrelate with the human body by four distinct modes of action - pharmacological, physiological, psychological and spiritual. Our body uses the aromatic molecules (essential oils) in two ways: (1) through our olfactory system which is connected to the brain where our most primal feelings, urges and emotions reside, and (2) by absorption of the low molecular weight compounds of essential oils through skin.

With hundreds of new fragrances brought to the market every year worldwide, the consumers' choice is large, and manufacturers are seeking new innovative formulations to stand out from competitors in this billion-dollar industry. Innovation in perfume sector may come through innovative perfume ingredients: key players in the market are focusing on developing eco-conceived natural fragrance ingredients.

In recent years, with the increasing environmental concern, consumers are changing their habits and are actively

looking into the quality of the products they use daily. They are much more conscious in the composition of the perfume and are seeking for organic and natural product which would be utilized in day to day life [8].

In this global quest for a sustainable and green future, perfumes are not outdone, and the topic of sustainability is currently one of the central concerns of the fragrance industry, which is required just as other industrial sectors to provide tangible solutions to mitigate its environmental.

As we all know Rose (*Rosa rubiginosa*) and Lily (*Lilium Candidum*) are the beloved and the most well-known ornamental plants all over the world. The extraction of Rose and Lily using methanol has a very good antibacterial properties which further enhances the usage of the extract as an ingredient to empower the odour in leather products, textile products, cosmetics.

Experimental Section:

Material and Methods: Rose petals, Lily leaves, Methanol, Ethanol, Petroleum ether
General Method: Our main purpose is to isolate fragrance from rose & lily by research methodology, For, this purpose several types of experiments were designed as under.

This process would be produced from natural resources so easy to access & economically supportive.

General procedure: Experiments to extract fragrance form Rose & Lily:

Basic trials of the extraction of the fragrance from rose petals and lily leaves were tried with conventional methods like distillation, Soxhlet extraction etc, but we found that there was no extraction of fragrance in any of the above methods. Later we tried with leaching process at room temperature which in fact had given good result. The process of leaching is mentioned below as 20 gm rose petals was added into 100ml round bottomed flask containing 50 ml of methanol. After 2 days the fragrance was observed. Also, the same procedure was done with ethanol as a solvent and after 2 days fragrance was monitored and the aroma was extracted by leaching process. The same procedure was followed for lily leaves.

Detection Method: The fragrance can be detected by physical tests & functional gps presents in cyanines & palargonines in rose and flavanoids present in lily can be confirmed by IR analyses.

RESULTS AND DISCUSSION

FT-IR analysis: IR spectra of Rose extract showed frequencies (cm-1) at 3736-2972 (broad) indicating -OH gp, 2972, 2922, 2865, 2844 indicating alkyl gp, 1601, 1500 indicating aromatic ring, 1055 indicating ether gp. All necessary gps which are present as cynines & palargonines in rose extract confirmed by IR analyses [9].

IR spectra of Lily extract showed frequencies (cm⁻¹) at 3745-2972 (broad) indicating -OH gp, 2938, 2922, 2865, 2843 indicating alkyl gp, 1842, 1731, 1679 indicating flavanoid ring, 1649 indicating ketone gp, 1512 indicating aromatic ring, 1345 methyl gp, 1055 indicates ether gp. All necessary group which are present as flavanoids in lily confirmed by IR analyses [10].

The utility of this process to extract aroma is, the isolated fragrance can be useful in many purposes such as perfumes, room freshener, candles, deodorants, cosmetics. Looking towards mankind uses these rose & lily extracts were exposed to antimicrobial activity.

Biological Activity Rose extract & Lily extract were screened for their antibacterial activity.

Antibacterial activity: Rose & Lily extracts were tested for their antibacterial activity against *Escherichia coli* (gm -Ve), *Bacillus* (gm +Ve) using cup-plate method¹¹ at 100 ppm concentration in

ethanol solvent. Ampicillin was used as standard drug. Both extracts showed excellent activity against gm+Ve and gm-Ve bacteria (Table 1).

Pharmacology: Antibacterial activity of rose & lily extracts were tested in vitro in these bacterial strains of *Bacillus* (gm +ve), *Escherichia coli* (gm -ve) were used, using serial agar dilution (cup plate method). The microorganisms were cultured in dishes containing agar medium, cups (8 mm) were put onto the dishes and each extracts (0.1ml) was added into the cups under aseptic condition. Then the dishes were incubated at 37°C for 24h. The zone of inhibition of the growth of the bacteria, which were produced by diffusion of the compounds from the cup into the surrounding medium, was measured to evaluate the antibacterial activity. Each experiment was repeated twice. Ethanol was used as a positive control for the experiments. Compare to control both extracts showed higher antibacterial activities.

Table 1: Zone of inhibition in mm (Antibacterial Activity)

Extract	Bacillus (gm +Ve)	E.Coli (gm -Ve)
Rose	14	12
Lily	10	8
Control	4	3

CONCLUSION

Aroma from both rose & lily extracted by eco friendly and viable leaching process. Rose & lily extracts show good

antibacterial activity. This will be useful to mankind as deodorants & perfumes with antimicrobial activities will kill bacteria due to perspiration & body odor.

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