

## STUDY OF ANTIMICROBIAL AND ANTI-TANNING AGENTS

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### ABSTRACT

The paper surveys diverse antimicrobial and hostile to tanning agents. The objective of this work is to formulate and evaluate a polyherbal face pack for cosmetic purpose from natural ingredients. As the biggest organ of the body, your skin retains heaps of supplements, as well as takes in various poisons each day. Many restorative healthy skin items can contain endocrine - upsetting phthalates or parabens. These toxic substances can bring about regenerative issues and expanded growth hazard, and studies additionally recommend the more items you utilize, the higher harmful focuses can get in your body. Moreover, because beautifying agents are infamous for having these dangerous ingredients, it is proposed to stay away from cosmetics totally. In any case, if you should utilize it, why not search for common or natural cosmetics? The volatile oils of clove (*Syzygium aromaticum*), papaya (*Carica papaya*), turmeric (*Curcuma longa*), lemon (*Citrus limon* L. Osbeck), neem (*Azadirachta indica*), tulsi (*Ocimum tenuiflorum*), aloe vera (*Aloe Barbadensis* Miller), and honey were evaluated for antimicrobial movement against three distinct genera of microbes to be specific *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Escherichia coli*. The unpredictable oils displayed significant inhibitory impacts against every one of the life forms under test while their real parts exhibited different degrees of development restraint.

**Keywords:** Phthalates, Parabens, Degrees of growth inhibition, Antimicrobial movement.

### INTRODUCTION

“The average lady in Asia experiences seven distinct strides taking care with her skin,” says Jessica Wu, MD, a Santa Monica, Calif., dermatologist. In the beginning, it appeared to be just normal that man ought to have swung to nature to cure himself of nature’s ills, and his initial scans for common healing operators prompt the utilization of herbs, plant extricates, enchantment charms, and so forth. As our insight expanded, there happened a combination of the sciences of general microbiology, bacteriology, what’s more, pharmaceutical. The germicide characteristics of fragrant and therapeutic plants and their concentrates have been perceived since relic, while endeavors to portray these properties in the research center go back to the mid-1900s. Confront pack is the smooth powder which is utilized for facial application, and a decent characteristic face pack must supply important supplements to skin and ought to infiltrate the subcutaneous tissues to convey the required supplements. Particular sorts of skin need different sorts of common face packs. Confront packs utilized as a part of Ayurveda lessens wrinkles, pimples, skin break out, and dark circles. They likewise increment the decency and smoothness of the skin. The natural face packs do contain some indispensable vitamins that are required for the well-being and sparkle of our skin. These substances additionally end up being advantageous for our skin from multiple points of view. Regular facial packs are less confounded and easy to utilize. They help us in caring for skin and demonstrate its value by expanding the flow of the blood inside the veins of the face.

Ancient products aim at treating the skin ailments at their primary stage itself while the modern ingredients aim at reducing the signs and symptoms only at their superficial level.

The points of the present examination were to survey the antimicrobial exercises of the characteristic items and contrast these with the impact of the anti-infection agents on bacterial development; to test the skin similarity by performing tests like pH test, hypersensitivity test, moisture content, and blotting paper test. Thus, in the present work, we found suitable properties for the face packs and further optimization studies are required on this study to find the useful benefits of face packs on human use as cosmetic product.

### MATERIALS AND METHODS

The volatile oils of clove (*Syzygium aromaticum*), papaya (*Carica papaya*), turmeric (*Curcuma longa*), lemon (*Citrus limon* L. Osbeck), neem (*Azadirachta indica*), tulsi (*Ocimum tenuiflorum*), aloe vera (*Aloe barbadensis* Miller), and honey were evaluated for antimicrobial movement against three distinct genera of microbes to be specific *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Escherichia coli* (Fig. 1).

- Clove - Antioxidant, treats acne, and antimicrobial properties
- Honey - Antibacterial, moisturizer, antioxidant, and complexion boost
- Aloe vera - Anti-inflammatory, wound healing, treats psoriasis, acne, and eczema
- Lemon - Antibacterial, treats acne, skin brightener, and moisturizer
- Neem - Lightening scars and pigmentation, moisturizer, and prevents scabies
- Papaya - Rejuvenating enzyme, antioxidant, and exfoliate skin
- Tulsi - Antibacterial, antibiotic, detoxifying, and anti-inflammatory
- Turmeric - Antioxidant, treats hypopigmented scars, and antiseptic
- Rose water - Antiageing, antioxidant, and anti-inflammatory

The ingredients were collected, dehydrated, and pulverized. A paste was made with those ingredients using honey and rosewater as base.

### Precautions to be taken while applying this pack

1. The face pack should not be left on face more than 20–25 min. Keeping for very long time may result in the formation of wrinkles, sagging of skin, and enlargement of open pores.
2. Apply face pack once in a week. Do not try to peel or scratch the dried face pack. This may harm underlying skin.
3. Spray water on face before removing dried face pack. After removing the mask, roll an ice cube on skin. This helps to close open pores and tightens skin. It also tones and soothes the skin.
4. Do not scrub face vigorously. This may result in eruption of pimples and dark spots. Stay away from heat when you have applied face pack.
5. Avoid applying face pack near “eye zone.” The skin around eye is very delicate. The process of removing face pack may damage skin around eyes.

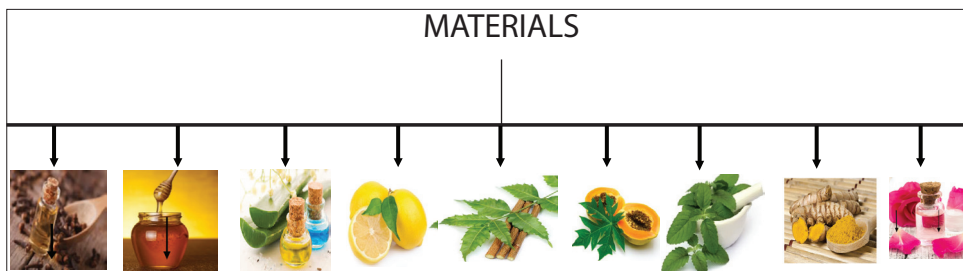


Fig. 1:



Fig. 2:

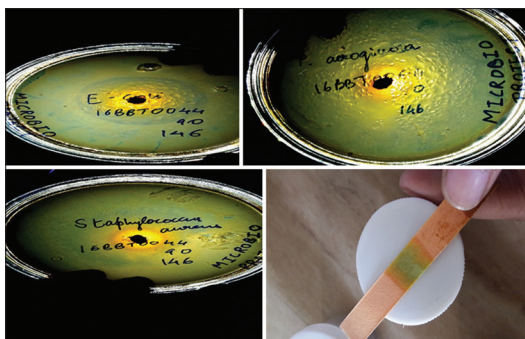


Fig. 3:

20 ml measures of liquid Muller–Hinton agar (45°C) were included in the study. When set, wells of 4 mm measurement were made in the focal point of every agar plate utilizing a cockerel borer into which 15 µl test substance was included in the study. The plates were then left undisturbed to permit dissemination of the example into the agar; and hatched modified oblivious at 25°C for 48 h. Taking after this, zones of development hindrance were measured utilizing Vernier calipers (Fig. 2).

**RESULTS**

The study of pH, allergic reaction (patch test), zone of inhibition, and anti-tanning property was done. For the study of anti-tanning property, the pack was applied for 21 days on daily basis, and a slight change in the skin complexion was observed. It could have been improved if certain chemicals and techniques were used that are implemented in the industries practically.

Antimicrobial evaluation was performed using three microbes, namely *E. coli*, *S. aureus*, and *P. aeruginosa*.

The results of the remaining tests are shown in Table 1 and Fig. 3.

The formulation was found homogenous, easily washable and had very slightly alkaline pH which was compatible with normal skin physiology.

**DISCUSSION**

The formulation was found homogenous, easily washable and had very slightly alkaline pH which was compatible with normal skin physiology. The ingredients were collected, dehydrated, and pulverized. A paste was made with those ingredients using honey and rosewater as base.

Instead of using harmful chemicals such as parabens (causing breast cancer) and lauramide diethanolamine (shows carcinogenic activity when used in high concentration), we rather devised a method purely based on natural ingredients.

**CONCLUSION**

A skin-friendly antimicrobial and anti-tanning face pack can be made using naturally available ingredients, because of which the face

Table 1:

Bacterial cultures	Measurement of zone of inhibition
<i>Escherichia coli</i>	20 mm
<i>Staphylococcus aureus</i>	17 mm
<i>Pseudomonas aeruginosa</i>	8 mm

Table 2:

pH	7
Patch test	No allergic reaction was observed

**Bacterial strains**

Three bacterial strains were utilized to survey the antibacterial properties of the test. *E. coli* and *Pseudomonas aeruginosa* are Gram-negative and *S. aureus* is Gram-positive microorganisms.

**EVALUATION OF RESTRAINT OF BACTERIAL DEVELOPMENT**

The estimation of development hindrance was conveyed utilizing Muller–Hinton agar. Muller–Hinton agar medium was made by including 3.8 g of Muller–Hinton agar in 100 ml refined water and autoclaving for 45 min utilizing weight cooker. Next, 1 ml measures of each culture were pipetted into particular sterile Petri dishes to which

pack is cost-effective and free from synthetic chemicals. The pack is effective against the bacteria which are present on the skin and cause harm to it.

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