https://doi.org/10.48047/AFJBS.6.Si4.2024.401-414

African Journal of Biological Sciences

Anti- Bacterial and Anti-Microbial Shower Gel of ymbopogon Citratus and Cinnamomum Camphora

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Article History

Volume 6, Issue Si4, 2024
Received: 15 May 2024
Accepted: 05 June 2024
Published: 1 July 2024
doi:
10.48047/AFJBS.6.Si4.2024.401-414

ABSTRACT:
Shower gel is a daily hygiene product in aqueous form, without soap. It has the same objective as soap: it's used to cleanse the body of all the impurities which build up on your skin. However, don't confuse shower gel with liquid soap, because it doesn't contain saponified oil. Instead, it contains synthetic surfactants derived from either petrol or plants. Shower gels are mostly water with small quantities of active ingredients and additives (humectants, pH adjusters, preservatives, etc) so are suitable for all skin types. Plus, shower gel is less drying for your skin than traditional soap, thanks to its neutral pH, which is weaker than that of soap. Body wash formulation is a multifaceted process that encompasses principles from chemistry, biology, and physics. The objective is to create a product that effectively cleanses the skin, provides a pleasant sensory experience, and caters to diverse skin types and concerns.

Keywords: Anti- Bacterial and Anti-Microbial, Cymbopogon Citratus, Cinnamomum Camphora.

INTRODUCTION:

Shower gel (also shower cream or body wash) is a specialized liquid product used for cleaning the body during showers. Not to be confused with liquid soaps, shower gels, in fact, do not contain saponified oil. Instead, it uses synthetic detergents derived from either petroleum or plant sources. Body washes and shower gels have a lower pH value than the traditional soap, which is also known to feel less drying to the skin. In certain cases, sodium stearate is added to the chemical combination to create a solid version of the shower gel. A shower gel is essentially a liquid soap or product, which is usually used on the body, although some formulations can be used on the hair as well. The shower gel is an emulsion of water and detergent base, usually with an added fragrance. Shower gels are now available in different colors and scents, and beautiful additions to the bathroom shelf. They are formulated to be pH-balanced and come with soothing and moisturizing ingredients as well. They can be used by both men and women because of their gentle and calming properties. Some shower gels contain mild conditioning agents in the formula, so they can double up as an effective and perfectly acceptable substitute to shampoo. Washing hair with a shower gel has about

the same effect as a moisturizing shampoo. Shower gels are fun, soothing and beautifully-fragranced, making them attractive for bath time. And with the range of products now available, you can be sure they've become an integral part of our bathroom shelves. A shower gel can help you achieve a soothing bath time. It is essentially a liquid soap formulated for the skin and sometimes for the hair. The shower gel is gentle and nourishing and doesn't cause any drying effect as bar soaps. The shower gel is a form of liquid soap that is gentler and more luxurious than other liquid-based soaps. Shower gels have a firm consistency and offer a luxurious bathing experience. The best shower gel is one that cleanses, moisturizes, and exfoliates. If you have a particular skin condition, look for ingredients with antioxidant, antiinflammatory, and anti-bacterial properties. It must also be pH-balanced. They are made from naturally derived ingredients that cause a lather to cleanse your skin effectively without drying it out. They are formulated to be pH-balanced and have soothing and moisturizing ingredients.[1] (LEITZKE, et.al 2021) The shower gel has a lower pH level than soap. Shampoos are based on complex systems of surfactants having the function to cleanse the hair. Because of their everyday use it is not surprising that the shampoo market comprises approx. 12% of the total personal-care industry. Body wash, often referred to as shower gel too, plays a significant role in our daily hygiene routine, as it helps remove dirt, oils, and impurities from the skin while offering an enjoyable bathing experience. The science behind body wash formulation is essential for creating products that effectively cleanse, nourish, and protect the skin without causing irritation or dryness. In this comprehensive guide, we will explore the various ingredients, processes, and considerations involved in formulating body washes that cater to different skin types, preferences, and concerns. These products are complex systems consisting of about 80 wt.% water, 10wt.% surfactants, 5wt.% viscosity modifiers, 2wt.% preservatives, fragrances and colorants and about 3wt.% of performance additives. Few things are more important to customers than using thick (rich) shampoo product correlating this directly with value and concentration. A shampoo is not only expected to be easy to use but to meet also sensory criteria that will appeal to the customer. One main rheological parameter that correlates with the thickness and flow properties of a shampoo is the viscosity. The viscosity affects both the cleansing efficiency and the user perception of a shampoo product. In addition to that it also influences the foaming properties, production filling, packaging, storage and long-term stability of the product. Viscosity is a quite important parameter! As was mentioned already, customer perception is one of the most important parameters, however who is the customer and what does he expect? The three different customer groups Female, Male and Children (Infants) have different views on the same product class because they usually put different amounts of energy into a shampoo when they i.e. squeeze it out of the bottle or distribute it on themselves. This is due to the fact that the different processes will happen at different stress levels (as the customer groups apply different forces) and thus result in different shear rates. As no customer wants to experience the viscosity the product has at rest (rich and creamy) when they actually use the product, a shampoo has to be a nonNewtonian or better shear thinning fluid. To induce non-Newtonian flow and thus modify the flow behaviour towards the specific customer groups, water-soluble polymers are used as modifiers. This contribution is to show how products for those different customer groups differ rheological and how easy. The product at issue is a shower gel, of different scents (sunny melon and power fruit), put up for retail sale.[2] (McCray, et.al 2020). The labeling of the product reads as follows: Discover the unique combination of freshness and rich care under the shower. Delight your senses with the fruity scent of the honeydew melon, while the silky fresh gel with pampering oil pearls turns into caring soft foam for the unique sensation of soft, well-cared skin. Indulge yourself with every shower. Bath preparations, such as perfumed bath salts and preparations for foam baths, whether or not containing soap or other organic surface active agents. Soap; organic surfaceactive products and preparations for use as soap, in the form of bars, cakes, molded pieces or shapes, whether or not containing soap; organic surface-active products and preparations for washing the skin, in the form of liquid or cream and put up for retail sale, whether or not containing soap; paper, wadding, felt and nonwovens, impregnated, coated or covered with soap or detergent. This part includes preparations for washing the skin, in which the active component consists wholly or partly of

synthetic organic-surface active agents (which may contain soap in any proportion), provided they are in the form of liquid or cream and put up for retail sale. Bathe “Immerse oneself in water, esp. to swim” or “Immerse in or wash or treat with liquid esp. for cleaning or medicinal purposes. Shower bath a cubicle, bath, etc. in which one stands under a spray of water”, or “the act of bathing in a shower. For bathing, liquid soap or bath mixtures are poured in a tub of water to produce foams and there is no necessity to rinse the body after the bath. However, in the case of shower gel, it is meant to be poured onto hands, rubbed all over the body and most essentially, it should be rinsed off with water. The product at issue contains sodium laurethsulfate, cocamidopropyl betaine, disodium cocoyl glutamate, PEG-7 glyceryl cocoate, all of which are surfactants that are commonly used in shower products. Additionally, referring to the dictionary meaning of the two words, i.e, shower and bath, it is opined that the product is not for use in a bathtub and rinsing with water is required. Hence, as a bath preparation, is ruled out. The product is a liquid soap for washing the skin while taking shower and the appropriate classification of the shower gel.

Shower gel is a daily hygiene product in aqueous form, without soap. It has the same objective as soap: it’s used to cleanse the body of all the impurities which build up on your skin. However, don’t confuse shower gel with liquid soap, because it doesn’t contain saponified oil. Instead, it contains synthetic surfactants derived from either petrol or plants. Shower gels are mostly water with small quantities of active ingredients and additives (humectants, pH adjusters, preservatives, etc…) so are suitable for all skin types. Plus, shower gel is less drying for your skin than traditional soap, thanks to its neutral pH, which is weaker than that of soap. Body wash formulation is a multifaceted process that encompasses principles from chemistry, biology, and physics. The objective is to create a product that effectively cleanses the skin, provides a pleasant sensory experience, and caters to diverse skin types and concerns. Surfactants are the primary cleansing agents in body wash formulations. These substances have both hydrophilic (water-loving) and lipophilic (oil-loving) properties, which allow them to break down dirt, oils, and impurities and rinse them away in water. Some common surfactants found in body washes include sodium lauryl sulfate (SLS), sodium laurethsulfate (SLES), cocamidopropyl betaine, and decyl glucoside. Formulators typically use a mixture of primary and secondary surfactants to achieve optimal foaming, cleansing, and skin compatibility.[3] (MIRANDA, N, et.al 2021)

Type of Shower Gel:[4,5] Moisturizing Shower Gel:

shower gel and body wash generally accomplish the same task of cleansing skin from dirt, sweat, and dead skin cells, shower gels tend to be more aggressive products, which can overly dry out skin. Body washes, on the other hand, are typically gentler, leading to increased Moisturization. Moisturizing shower gel is that it helps your skin to retain moisture when it is being washed. dry skin after showering or bathing, a moisturizing shower gel can ensure your skin stays hydrated and doesn't lose its own natural oils during the washing process.

Fig No- 1 Moisturising Shower Gel

▪ A shower gel is a type of body cleanser that starts in liquid form and then foams up into a lather when combined with water. A moisturizing shower gel works in the same way but with the added benefit of containing active ingredients that are designed to hydrate and add moisture to the skin.
▪ If you suffer from dry skin, either all over your body or on specific areas such as the elbows, knees and feet, then a moisturizing shower gel can help to lock in moisture during showering or bathing.
▪ Shower gels are typically soap-free and instead get their cleaning abilities from ingredients known as surface active agents, or surfactants. This means that they are less likely to strip your skin of its natural oils in the way that traditional soaps can.
▪ The main benefit of using a moisturizing shower gel is that it helps your skin to retain moisture when it is being washed. If you experience dry skin after showering or bathing, a moisturizing shower gel can ensure your skin stays hydrated and doesn't lose its own natural oils during the washing process.
▪ Even if you use a moisturizing shower gel when showering or bathing, your skin may still lose some moisture and hydration during the cleansing process. Therefore, you should still apply a good moisturiser after using a moisturizing shower gel.
▪ For best results, apply your chosen moisturizing cream while your skin is still damp and gently massage into your skin.
▪ The best moisturizing shower gel should contain active ingredients to moisturise the skin, such as hyaluronic acid, shea butter and coconut oil. One of the most popular moisturizing shower gels is Neutrogena Hydro Boost Gel, which is enriched with hyaluronic acid and approved by dermatologists.[6,7] Other benefits of using a moisturizing shower gel include: [8,9]
• To keep your body smelling fresh.
• To keep your skin smooth and soft.
• To prevent premature ageing of the skin.
• Good for dry and very dry skin.
• Scent lasts longer on the skin.
• Infuses your skin with moisture.
• Exfoliates the skin.

Uses of Shower Gel:

Moisturizing shower gels have several key uses and can easily be incorporated into your daily skincare regime. The most common uses for a moisturizing shower gel are:

▪ **To cleanse the skin:**
Once lathered onto the skin, a moisturizing shower gel can be used to clean away dirt, excess oil and bacteria from the skin.

▪ **To treat skin conditions:**
You can get medicated shower gels that contain active skincare ingredients that are designed to treat skin conditions such as eczema and psoriasis.

▪ **To banish bad odors:**
Scented moisturizing shower gels can be used to make your skin smell fresh and lovely. Although, if you have sensitive skin, you should avoid artificial fragrances, as these can cause irritation.

▪ **To lock in moisture:**
A moisturizing shower gel should contain hydrating skincare ingredients such as glycerin, ceramides and hyaluronic acid, all of which help to lock in moisture and prevent your skin from drying out during showering.[10] (Carole, et.al 2020) Shower Gel Benefits: [11,12]

❖ A good shower gel should cleanse deep and remove dirt, dead skin cells, and other impurities without disturbing the skin's gel balance. Skincare experts often prefer vitamin B3, amino acids, coffee, rosemary leaf oil, walnut, and apricot. They help cleanse, smoothen, and revitalize dull skin.

❖ Shower gel offers several benefits for all skin types. It comes with hydration and moisturization properties. You can use shower gel on your face as they are safe for it and don't cause you to spend extra money on getting another product for your face. Using shower gel on your body helps remove all dead skin, dirt, and other impurities from the skin. Also, shower gel is more hygienic than bar soap and other body wash.

Properties:

▪ Shower gels are known to consist of the same basic ingredients as soap - water, betaines, and sodium laurethsulfate, or SLS. But the main difference between the two products lies in its surfactants - compounds known to lower the surface tension between substances, which helps in the emulsification and the washing away of oily dirt. The surfactants of shower gels do not come from saponification that is by reacting a type of oil or fat with lye. Instead, it uses synthetic detergents for surfactants derived from either plantbased sources or petroleum. This gives the product a lower pH value than soap and might also feel less drying to the skin. Some people have likened the effect to feeling less squeaky clean, however.

▪ Surfactants can make up as much as 50 percent of the shower gel content, with the remaining proportion being made up of a combination of water and ingredients to thicken, preserve, emulsify, add fragrance, and color. Multiple surfactants are often used to achieve desired product qualities. A primary surfactant can provide good foaming ability and cleaning effectiveness, while a secondary surfactant can add qualities of mildness to prevent irritation or over-drying of the skin. To prevent shower gel ingredients from separating, emulsifiers such as diethanolamine are added. Conditioning agents may also be added to moisturize the skin during and after product use. They are also available in different colours and scents. Ingredients, like scent in the form of essential oils or fragrance oils and colorant in the form of water soluble dyes are common in shower gels.[13,14,15]

▪ Microbeads were commonly used in shower gels until recently. Microbeads are tiny spheres of plastic that were added to a variety of cosmetic products for their exfoliating qualities. They are too small to filter out of water systems and end up in waterways and oceans, potentially passing toxins to animal life and humans. Following the legislative actions of other countries, the United States passed the Microbead-Free Waters Act in 2015, which bans microbeads in the U.S. incrementally

starting in 2017, with full implementation set for 2019. It has been banned from production and use in cosmetics in the U.S. since July 1, 2017. In the UK - since October 1, 2018.

- Shower gels for men may contain the ingredient menthol, which gives a cooling and stimulating sensation on the skin, and some men's shower gels are also designed specifically for use on hair and body. Shower gels contain milder surfactant bases than shampoos, and some also contain gentle conditioning agents in the formula. This means that shower gels can also double as an effective and perfectly acceptable substitute to shampoo, even if they are not labelled as a hair and body wash. Washing hair with shower gel should give approximately the same result as using a moisturizing shampoo.

Advantages:

❖ A shower gel can help you achieve a soothing bath time. It is essentially a liquid soap formulated for the skin and sometimes for the hair.

❖ The shower gel is gentle and nourishing and doesn't cause any drying effect as bar soaps. The shower gel has a lower pH level than soap.

❖ There are several benefits of using shower gel over the traditional bar soap. Shower gels are gaining a lot of popularity as they are packaged in such a way that cannot be penetrated and it delivers a pure product to your skin. It offers better formulation and a wide variety of natural products that contain potent essential oils, fragrance and vitamins.

Disadvantages:

❖ Drawbacks of Shower Gels and Body Washes: Potential for skin dryness, especially with products containing harsh detergents. Environmental concerns related to packaging and ingredients. Possible skin sensitivities to fragrances or certain components.

Side effects of shower gel:

❖ Everyone can experience shower gel allergy symptoms differently, but the most common are: Redness of the skin; Flaky, scaly; there are blisters that come out; skin stinging or possibly intense itching; Swelling of the eyes, face and genitals; Rash or hives; Skin is sensitive to the sun; dark, rough and cracked skin.[16] (Dario, et.al 2019) Anti-Microbial Activity: [17,18]

❖ Microbial infections, caused by bacteria and fungi, are a serious health problem, especially with respect to wound healing and biomedical implant fouling.1–4 Staphylococcus aureus, Staphylococcus epidermidis, Escherichia coli, Pseudomonas aeruginosa and Candida species are examples of pathogens normally related to these types of infections. Infection can prolong or impair the wound healing process leading to tissue morbidity and depending on the severity of infection, sepsis can occur. Regarding biomedical implants, infection at the implant-tissue interface can lead to implant failure, which necessitates implant removal and replacement. Other devices such as catheters can act as vehicles that introduce infection from the nosocomial environment to the patient. Different strategies have emerged to develop materials having antimicrobial activity to prevent or treat infections at wound, implant, and device insertion sites. Materials can be impregnated with antimicrobial agents that are released over time7,8 or the surface of the material can be covalently modified to immobilize broad spectrum antimicrobial agents, such as antimicrobial peptides (AMPs), silver ions or polycationic groups,9–12 that confer antimicrobial properties to the material’s surface.

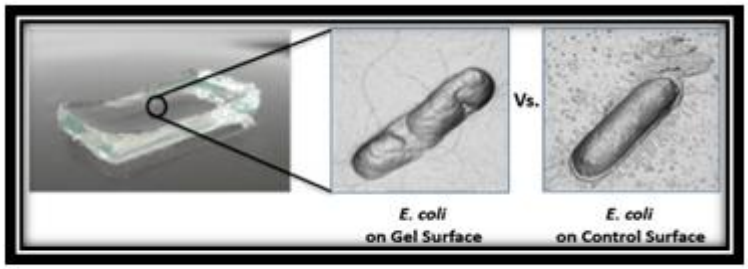

Fig No-2 Micrographs

Anti-bacterial Activity:

Antibacterial Skin and Wound Gel is a clear, amorphous, isotonic hydrogel that helps maintain a moist wound environment that is conducive to healing, by either absorbing wound exudate or donating moisture while delivering 0.057% broad-spectrum antimicrobial sodium hypochlorite. A drug, chemical or other substance that kills bacteria (bactericidal) or stops their growth (bacteriostatic). Antibacterial gel is a disinfecting gel that effectively cleanses the skin with water. It is a soap containing active antimicrobial ingredients that kill bacteria and other germs. Antiseptic hand gel is an alternative method to hand washing that effectively kills bacteria and germs without water. With antiseptic agents, hand gel protects you from harmful bacteria that may cause illnesses wherever you are. It is an extremely important way of maintaining skin health and preventing the spread of harmful illnesses. [19,20,21]

Wrinkles are a natural part of the aging process. As people get older, their skin becomes thinner, drier, and less elastic, which means it is less able to protect itself from damage. This leads to wrinkles, creases, and lines on the skin. Facial expressions, such as smiling, frowning, or squinting, lead to the development of fine lines and wrinkles at a young age.[22] (Mélanie, et.al 2019)

Antioxidant Activity:

Oxidative stress plays a key role in the pathogenesis of aging and can be caused by various negative impacts such as gamma or UV radiations, environmental factors, polluted and poor-quality food, stress, some medications or treatments, smoking, alcoholism, etc. Prolonged oxidative stress inevitably leads to dangerous diseases such as cancer, cardiovascular diseases, or diabetes and premature aging. Oxidative stress can be reduced by antioxidant therapy, i.e., by consumption of certain amounts of natural antioxidants Antioxidants are substances which delay or prevent the oxidation of an oxidizable substrate and they can either be natural or synthetic. Natural antioxidants are produced by biological systems. C. citratus showed high contents of total phenolic and total flavonoids, as well as high free radical scavenging capacity Ethanol extract of C. citratus leaves show the high total phenol content with potential as an antioxidant, because it acts inhibitory against free radical DPPH, and oxidative stability by Rancimat experiment with soybean oil Furthermore, C. citratus ethanol extract have hydrogen peroxide and hydroxyl radical scavenging activity, and chelating effect of ferrous iron activity. Apart of that C. citratus leaves extract have anti-glycation activity. [23,24,25]

Anti-inflammatory:

citratus extract and its polyphenols inhibited the cytokine production on human macrophages. This supports the anti-inflammatory activity of C. citratus polyphenols in physiologically relevant cells. Concerning the effect on the activation of nuclear factor (NF)-kB pathway, the results pointed to an inhibition of LPS-induced NF-kB activation by C. citratus and polyphenol-rich fractions. Chlorogenic acid was identified, as the main phenolic acid of the C. citratus infusion, and it demonstrated to be, at least in part, responsible for that effect. Additionally, it was verified for the first time, that C. citratus and polyphenol-rich fractions inhibited the proteasome activity, a complex that controls NF-kB activation, having CGA a strong contribution. The evaluation of the anti-inflammatory activity of C. citratus leaves infusion and its flavonoid-rich and

tannin-rich fractions was performed in the carrageenan-induced rat. Paw edema model. Both central and peripheral analgesic activities were evaluated in mice through the hot plate test and the acetic acid-induced writhing test, respectively. In the acute inflammation model, the statistically significant results obtained in percentage of edema inhibition. For the peripheral pain evaluation, statistically significant results showed a pain reduction. This demonstrates that C. citratus infusion compounds are able to reduce inflammation and peripheral pain in vivo, with polyphenols showing a significant contribution for these activities.[26,27] Structure of Skin: [28, 29, 30]

• Skin is the outer-most tissue of the human body. As a result, people are very aware of, and very sensitive to, the appearance of their skin. Consequently, skin appearance has been a subject of great interest in various fields of science and technology. In particular, research on skin appearance has been intensely pursued in the fields of computer g Sleep wrinkles.

• The human skin is composed of diverse tissues that work together as a single structure to maintain internal body conditions (homeostasis) and that functions equally as a communicator to and a defense against the outside world. Skin is a constantly changing, dynamic organ that is involved in numerous processes vital to our health, e.g., regulation of the body temperature, balance of fluids, sensory reception, synthesis of vitamins and hormones. Human skin is composed of three distinct compartments, epidermis, dermis and hypodermis. The skin is the body's largest organ, made of water, protein, fats and minerals.[10] (Cantu, et.al 2019).

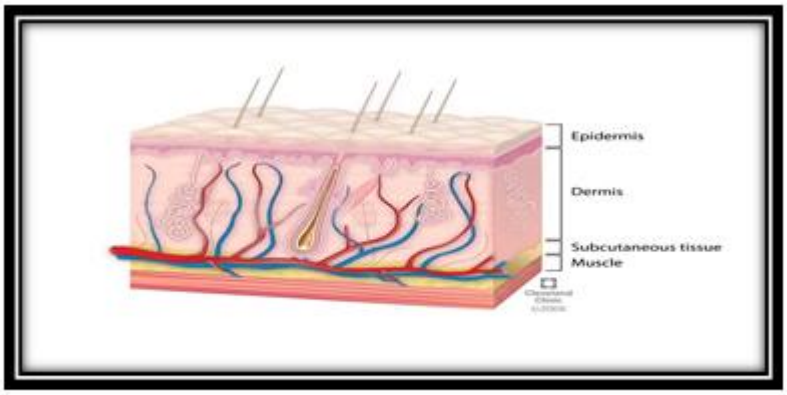

Fig No-03 Structure of Skin

Layers of the skin:

Epidermis- the top layer:

Your epidermis is the top layer of the skin that you can see and touch. Keratin, a protein inside skin cells, makes up the skin cells and, along with other proteins, sticks together to form this layer. The epidermis

• Acts as a protective barrier: The epidermis keeps bacteria and germs from entering your body and bloodstream and causing infections. It also protects against rain, sun and other elements.

• Makes new skin: The epidermis continually makes new skin cells. These new cells replace the approximately 40,000 old skin cells that your body sheds every day. You have new skin every 30 days.

• Protects your body: Langerhans cells in the epidermis are part of the body's immune system. They help fight off germs and infections.

• Provides skin color: The epidermis contains melanin, the pigment that gives skin its color. The amount of melanin you have determines the color of your skin, hair and eyes. People who make more melanin have darker skin and may tan more quickly.

Dermis- the middle layer:

• Has collagen and elastin: Collagen is a protein that makes skin cells strong and resilient. Another protein found in the dermis, elastin, keeps skin flexible. It also helps stretched skin regain its shape.
• Grows hair: The roots of hair follicles attach to the dermis.
• Keeps you in touch: Nerves in the dermis tell you when something is too hot to touch, itchy or super soft. These nerve receptors also help you feel pain.
• Makes oil: Oil glands in the dermis help keep the skin soft and smooth. Oil also prevents your skin from absorbing too much water when you swim or get caught in a rainstorm.
• Produces sweat: Sweat glands in the dermis release sweat through skin pores. Sweat helps regulate your body temperature.
• Supplies blood: Blood vessels in the dermis provide nutrients to the epidermis, keeping the skin layers healthy.

Hypodermis- bottom layer of skin
• Cushions muscles and bones: Fat in the hypodermis protects muscles and bones from injuries when you fall or are in an accident.
• Has connective tissue: This tissue connects layers of skin to muscles and bones.
• Helps the nerves and blood vessels:
Nerves and blood vessels in the dermis (middle layer) get larger in the hypodermis. These nerves and blood vessels branch out to connect the hypodermis to the rest of the body. Regulates body temperature: Fat in the hypodermis keeps you from getting too cold or hot.[31,32]

Types of skin:
• **Normal Skin:** As a general rule, your skin is not adversely affected by new products or changes in the weather. Consequently, there is no need to continually moisturise or wipe away oil from your face. Normal skin can handle most substances, as compared to all other skin types. Use a variety of cleansers, moisturizers, and masks until you discover the right one.
• **Oily Skin:** If you have oily skin then your skin is constantly shining. Blotting papers and mattifying powders are your saviours. Facial oil secretion is an early morning problem for you and applying makeup gets quite tedious. Here is how to know your skin type.
• **Dry or Dehydrated Skin:** Despite the fact that dryness and dehydration are two distinct issues, they have several similar signs.
▪ **Dryness:** Oil deficiency in the skin leads
to a loss of hydration. Flakiness, sensitivity, itching and cracking are a few symptoms. Lifestyle and environmental factors or a chronic illness are the most common reasons for dryness of the skin.
▪ **Dehydrated:** The effect of not keeping
enough moisture in your skin is dehydration. Your skin feels tight, looks papery or has tiny wrinkles when it is squeezed together.
• **Combination Skin:** Facing problems with how to identify skin type? You are likely to have a combination skin type if you are experiencing dry patches and oily skin at the same time.
• **Acne-prone Skin:** It is a prevalent skin type amongst youngsters and is caused due to excessive sebum secretion and clogged pores. Acne-prone skin witnesses swollen and painful acne often accompanied by pimples. Do not prick or touch them with dirty hands.
• **Sensitive Skin:** Possibly, genetics, allergies, or environmental factors cause sensitive skin. Let us help you to know how to identify skin type quite easily.
• **Mature Skin:** Your skin ages and one or two wrinkles appear and your skin looks drier than in your youth. Then it is mature skin.[33] (H.J., et.al 2021)

DRUG PROFILE: [34,35,36]

FRESH LEMONGRASS: Biological Source: Cymbopogon citratus Belonging to Family: Poaceae.

FIG.4 Cymbopogon citratus

TABLE.1 TAXONOMY OF Cymbopogon citratus

Taxonomy	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Monocots
Clade:	Commelinids
Order:	Poales
Family:	Poaceae
Subfamily:	Panicoideae
Tribe:	Andropogoneae
Genus:	Cymbopogon

Chemical Constituents:

The compounds identified in Cymbopogon citratus are mainly terpenes, alcohols, ketones, aldehyde and esters. Some of the reported phytoconstituents are essential oils that contain Citral α, Citral β, Nerol Geraniol, Citronellal, Terpinolene, Geranyl acetate, Myrecene and Terpinol Methylheptenone. Citral is important in flavor formation of the plant. Major constituents such as neointermediol (7.2%), selina-6-en-4-ol (27.8%), α-cadinol (8.2%), methyheptenone (1.2%), eudesma-7(11)-en-4-ol (5.3%), 3, 7-dimethyl-1, 3, 6-octatriene (0.58%), decanal (0.25%) and naphtalene (0.79%), have been reported.

Uses:

In food and beverages, lemongrass is used as a flavoring. For example, lemongrass leaves are commonly used as "lemon" flavoring in herbal teas. In manufacturing, lemongrass is used as a fragrance in deodorants, soaps, and cosmetics. Lemongrass is also used in making vitamin A and natural citral. The plant is used as a fragrance and flavoring agent and in folk medicine as an antispasmodic, hypotensive, anticonvulsant, analgesic, antiemetic, antitussive, antirheumatic, antiseptic and treatment for nervous and gastrointestinal disorders and fevers. Lemongrass has traditionally been used in Ayurveda as a stimulant with its many benefits for the body and mind when added to a carrier oil. Its antiseptic and astringent properties make it perfect for getting even and glowing skin. Lemongrass possesses anti-hyperlipidemic and anti-hypercholesterolemic properties that support healthy cholesterol levels. It is effective in treating various types of cancers without affecting the healthy normal cells of the body. This also helps in calming nerves and curing insomnia.

CAMPHOR [37, 38]: Biological Source: Cinnamomum camphora Family: Lauraceae.

Fig. No 5 - Cinnamomum camphora

Table No 2- Taxonomy of Cinnamomum camphora

Taxonomy	
Kingdom:	Plantae
Clade:	Tracheophytes
Clade:	Angiosperms
Clade:	Magnoliids
Order:	Laurales
Family:	Lauraceae
Subfamily:	Nepetoideae
Tribe:	Mentheae
Genus:	Camphora

Chemical Constituents:

The essential oil from European basil contains high concentrations of linalool and methyl chavicol (estragole), in a ratio of about Other constituents include: 1,8-cineole, eugenol, and myrcene, among. The species contains volatile chemical compounds in all plant parts, and the wood and leaves are steam distilled for the essential oils. Camphor laurel has six different chemical variants called chemotypes, which are camphor, linalool, 1, 8-cineole, nerolidol, safrole, and borneol. In China, field workers avoid mixing chemotypes when harvesting by their odour. The cineole fraction of camphor laurel is used in China to manufacture fake "eucalyptus oil".

Uses

The camphor tree, Cinnamomum camphora, has been reported to be used traditionally for the treatment of heart conditions, colds and fevers, respiratory complaints such as pneumonia, inflammatory conditions, infections, diarrhea, and hysteria. Topical applications act as a counterirritant and antiseptic. It soothes skin conditions such as acne and eczema. It has the ability to reduce redness and irritation. It is an antiseptic and used to treat bacterial and fungal infections on the skin.[39]

- **ANTIMICROBIAL ACTIVITY**

The use of essential oils as antimicrobial agents is gaining attention in the couple of last decades. Multi-drug resistant microbial infections as well as negative effect of synthetic antimicrobial therapy, lead to the increase of natural herbal preparations. Literature reviews show that C. citratus possesses good antibacterial activity However, it could be used as an alternative treatment for enteric fever to cure infectious diseases related to the respiratory as well as for oral hygiene, it helps by removing bacteria from the oral cavity and prevents teeth and gum diseases such as periodontitis, plaque and gingivitis.[40]

- **ANTIINFLAMATORY**

C. citratus extract and its polyphenols inhibited the cytokine production on human macrophages. This supports the anti-inflammatory activity of C. citratus polyphenols in physiologically relevant cells. Concerning the effect on the activation of nuclear factor (NF)-kB pathway, the results pointed to an inhibition of LPS-induced NF-kB activation by C. citratus and polyphenol-rich fractions. Chlorogenic acid was identified, as the main phenolic acid of the C. citratus infusion, and it demonstrated to be, at least in part, responsible for that effect. Additionally, it was verified for the first time, that C. citratus and polyphenol-rich fractions inhibited the proteasome activity, a complex that controls NF-kB activation, having CGA a strong contribution.[41]

CONCLUSION: Anti- Bacterial and Anti- Microbial Shower Gel production and from local raw materials in order to supplement the existing ones. I recommend more research to be carried out on extraction of essential oil and its formulation from vast variety of oil bearing plants in our ecosystem. Further work should be carried out to analysis the Essential oil as this could not be done due to time constraint. Characterization of All oils components should be made in order to determine which is responsible for the characteristics of Pungent and Aromatic odor. Furthermore, large scale extraction of Essentialoil through enzymatic process should be explored; feasibility studies on the economic viability of the process should be conducted.

ACKNOWLEDGEMENT: The authors are thankful to the Principal, Smt. Sharadchandrika Suresh Patil College of Pharmacy, Chopda, Maharashtra, India. necessary facilities for research work.

CONFLICTS OF INTEREST: Authors have no conflicts of interest to declare.

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