

A Comprehensive Review on Skincare Cosmeceuticals

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Abstract

Skin care cosmeceuticals such as facewash, moisturizers, mask, sunscreen, exfoliators etc. are meant for modify, beautify and treat skin imperfections. These preparations have both therapeutic and cosmetic effects. Amongst, face wash is frequently used preparation that eliminates dirt and oil without drying out the face hence known as cleanser. This review compiles salient features of typically used skin cosmeceuticals, their advantages and therapeutic applications.

Keywords: Face Wash; Moisturizer; Sunscreen; Mask; Exfoliators; Therapeutic Applications

Introduction

The face wash is a type of cleaner that cleans without drying out the skin. The face wash is commonly referred to as a “cleaning agent”. Pollution, oil, and dirt are eliminated from the face with face washes and cleansers. A cleanser is a substance that cleans your skin by removing excess oil, makeup, and debris. These are pollutants that can be dissolved in oil. As a result, the skin seems to be more active and young. Cleaning, anti-wrinkle, anti-acne, moisturizing, and skin are among the topics covered. Moisturizer is an important aspect of fundamental daily skincare, especially when the epidermal barrier is compromised and the epidermal water content is low. It’s a key element of a dermatologist’s approach for maintaining skin health and treating a variety of dermatitis that co-exist with skin dryness and are connected to poor skin barrier function, such as atopic diseases and other kinds of dermatitis [1]. A face wash is a gentle cleanser that keeps skin clean, germ-free, smooth, and fresh while also moisturizing the horny layer without irritating the skin. As a result, the skin seems to be young and vigorous [2]. The objective of a face wash could be to provide cleansing, anti-wrinkle, anti-acne, moisturizing, and skin fairness. Skin whitening chemicals are thought to affect the synthesis and metabolism of melanin in the skin by suppressing melanin development in melanocytes and thereby reducing the amount of melanin

present. The face wash is a product that has anti-microbial, anti-inflammatory, and anti-acne properties. Face wash is a product that is applied to the human face for cleansing, beautifying, promoting attractiveness, or altering the skin’s appearance. Cleaning, anti-wrinkle, anti-acne, moisturizing, and skin fairness could all be the goals of a face wash. Skin whitening chemicals are hypothesized to alter the synthesis and metabolism of melanin in the skin by decreasing melanin formation in melanocytes, resulting in a reduction in melanin levels in the skin [3]. Here we discussed a few frequently used skincare preparations.

Face wash or cleansers

The face wash is a facial cleansing solution that removes dead skin cells, oil, dirt, and other pollutants from the face. A cleanser, toner, and moisturizer can all be used as part of a skincare routine [4].

Types of face wash

A face wash is acceptable for all skin types in general, but there are currently products on the market that are specifically made for certain skin types. An oily skin face wash, for example, is developed for those with oily skin and contains no oils, leaving a thin oily film on the skin. These are only a few of the many different types of face wash available on the market (Figure 1).

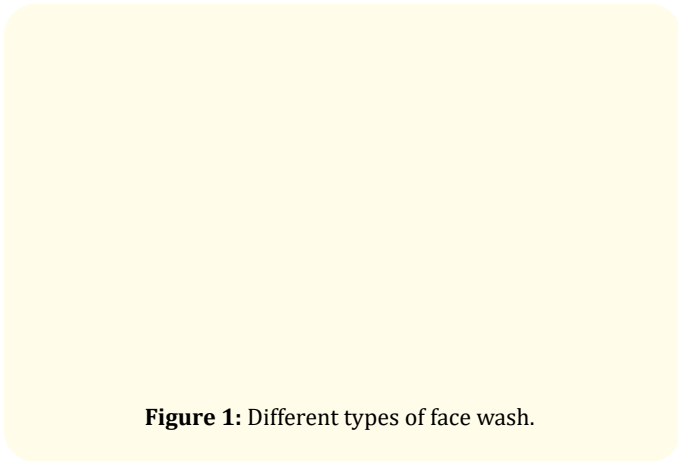


Figure 1: Different types of face wash.

Properties of face wash [5]

- Facial pores and oily skin are caused by excessive sebum secretion by the sebaceous gland, which clogs the pores and makes the skin oilier.
- Cleansers containing herbs and botanicals are recommended for oily skin because they clean the pores and reduce oil build-up.
- These exfoliating cleansers contain anti-inflammatory and antioxidant ingredients that help to repair and nourish damaged skin.
- The herbal face wash is used to treat acne and pimples because of its beneficial properties.
- Herbal face wash, which contains rich plant-based ingredients like name, removes excess oil without removing nutrients from the skin.
- Face wash should soften the skin when applied and spread quickly and easily without dragging.
- It should not have an oily or greasy feel when applied. Rather than absorption, its physical action should be that of a skin flush and pore opening. Moreover, a thin emollient film should remain on the skin after use.

Face wash and its applications

These are different forms of face wash available in the market (Figure 2) that are applied in different ways including [a] Cleansing and bathing that keeps skin shining/ clean, [b] Removing all traces of makeup every day, [c] Stimulating the generation and renewal of skin cells, [d] Assisting skin pores clear [5].

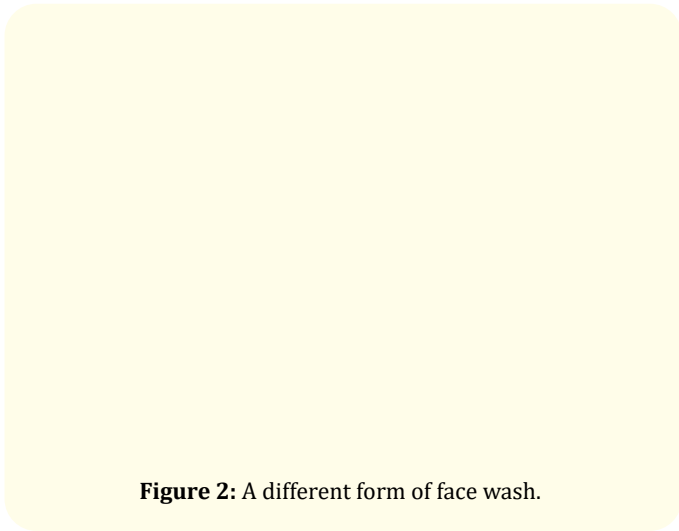


Figure 2: A different form of face wash.

Benefits of face wash

Face washes aid in the removal of dirt, oil, and contaminants from the environment that water alone can leave behind. Myriad benefits are portrayed in (Figure 3).

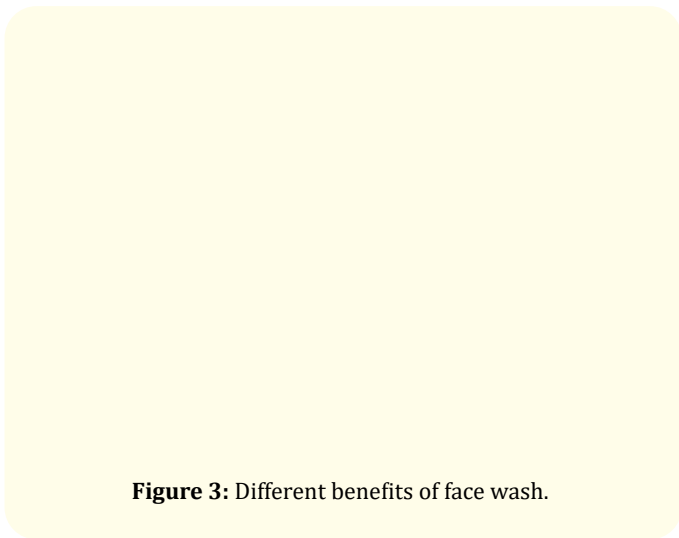


Figure 3: Different benefits of face wash.

Therapeutic applications of face wash

Antimicrobial

Antibiotics are compounds that prevent bacteria from growing and reproducing in their broadest sense. Antibiotics and antimicrobials are both antibiotics that kill bacteria, although their definitions have changed throughout time. Antimicrobials are currently

described as substances that are used to clean surfaces and kill microorganisms that are potentially hazardous [6].

Anti-inflammatory

It refers to the ability of a drug or treatment to reduce edema or inflammation. Anti-inflammatory medications account for nearly half of analgesics, and they work by lowering inflammation rather than opioids, which act on the central nervous system to block pain signals to the brain [7].

Anti-acne

Acne is a skin disorder characterized by pimples or “zits” on the surface of the skin. Acne vulgaris is the most common type of acne among teenagers. Anti-acne medications help teenagers get rid of pimples, blackheads, whiteheads, and other more serious acne lesions [8].

Additives used in face wash

Antioxidants

Antioxidants are chemical compounds that can aid cells in avoiding or delaying damage. There are synthetic and natural materials available. Antioxidants are included in many foods, including fruits and vegetables. They can be used as a dietary supplement as well.

Examples: Lycopene, Vitamin A, Vitamin C, and Vitamin E [9].

Gelling agent

Gelling agents are chemicals that thicken but do not stiffen water or oil into a gel. Emulsions thickened with gelling agents will be more fluid and mobile than stiff emulsions. When force is applied to certain of these gels, they thin (thixotropic) and then return to their original viscosity when the force is withdrawn. These gels allow you to make thick products that can be shaken or agitated under high shear to make bottling or spraying easier.

Examples: carpool 934 and carpool 940 [10].

Preservatives

Preservatives are used primarily to make food safer by removing biological components from the mix. Microorganisms (bacteria, yeast, and molds) present in consumers’ food may cause it to decay or become harmful.

Some of these creatures can produce substances that are harmful to human health and even death.

Examples: methyl parabane, propyl parabane [11].

Humectants

Humectants are hygroscopic compounds that keep things moist and are the polar opposite of desiccants. It’s usually a molecule containing a lot of hydrophilic groups, the most common of which are hydroxyl groups; although, amines and carboxyl groups, which can be esterified, can also be present (its affinity to form hydrogen bonds with molecules of water is the crucial trait). They can be found in a variety of products, including food, cosmetics, medications, and insecticides. They can be found in a variety of products, including food, cosmetics, medications, and insecticides. They can be present in food, cosmetics, pharmaceuticals, and insecticides, among other things.

Examples: Propylene glycol, and butylene glycol [12].

Foaming agent

A foaming agent sometimes referred to as a surfactant or a blowing agent is a chemical that aids in the production of foam. When present in modest levels, a surfactant reduces the surface tension of a liquid (reducing the amount of work necessary to form foam) or promotes colloidal stability by limiting bubble coalescence. The gaseous component of the foam is created by a blowing agent.

Examples: Sodium lauryl sulfate (S.L.S.) [13].

Moisturizers

Surprisingly, there is no agreement on what constitutes a moisturizer. This word was coined by marketers to promote the product’s ability to moisturize the skin. Even when occlusive and humectants are included, the terms moisturizer and emollient are frequently used interchangeably. Emollients are primarily lipids and their components, which fill the spaces between intercorneocyte clusters to improve skin hydration, smoothness, suppleness, and flexibility. Occlusive is a type of moisturizer that is mostly oil-based and works to keep skin hydrated by forming a hydrophobic barrier over the skin and preventing trans-epidermal water loss. Humectants, the last kind of moisturizer, are hygroscopic chemicals that assist the stratum corneum absorb water by drawing water from the dermis and a humid environment into the epidermis [14].

Types of moisturizer

There is no consensus on what qualifies as a moisturizer. Manufacturers invented this term to promote the product’s capacity to hydrate the skin. Figure 4 shows three different types of moisturizers.

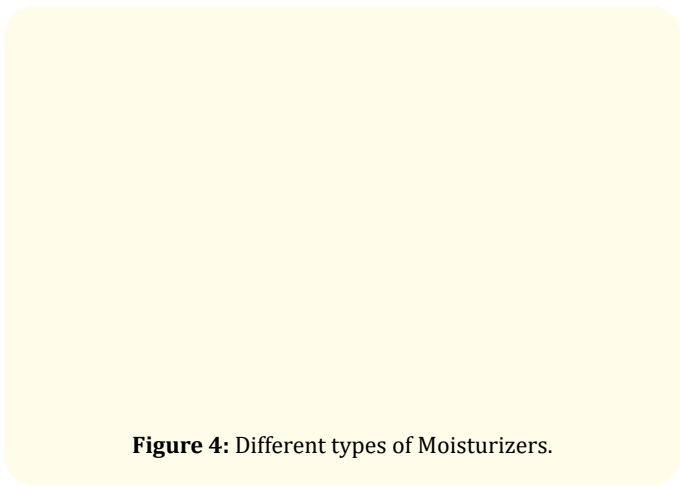


Figure 4: Different types of Moisturizers.

Emollients

Emollients (stearic, linoleic, oleic, lauric acid, and fatty alcohols) are necessary fatty acids found naturally in wool fat, palm oil, and coconut oil, and are commonly used in cosmetic formulations or topical therapeutics. Emollients have a variety of impacts on skin barrier function, involving eicosanoid generation, membrane fluidity, and cell cycle, as well as enhancing skin healing and permeability, all of which promote therapeutic benefits [15]. The categorization of emollients is shown in (Figure 5).

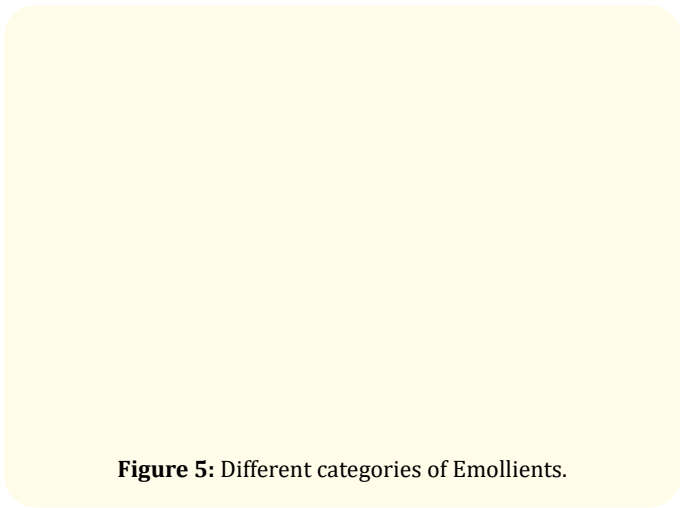


Figure 5: Different categories of Emollients.

Humectants

Humectants can also increase trans-epidermal water loss by promoting water absorption from the dermis into the epidermis,

where it is easily evaporated; thus, they are commonly used in conjunction with occlusive to aid improve epidermal barrier function and hydration [16]. Honey, sorbitol, glycerin, panthenol, urea, gelatin, hyaluronic acid, alpha hydroxy acids (lactic acid, sodium pyrrolidine, carboxylic acid), propylene glycol, and butylene glycol are examples of humectants.

Occlusive

When applied to wet skin, occlusive has the greatest impact, forming a hydrophobic barrier across the skin and contributing to the intercorneocyte matrix. The effectiveness of occlusive is enhanced by their diffusion into intercellular lipid regions. Petroleum is a mineral oil made up of a complex mixture of hydrocarbons. Liquid paraffin and petrolatum are the most essential materials. When compared to olive oil, petrolatum is the most effective traditional occlusive moisturizer; a minimal concentration of 5% may limit trans-epidermal water loss by more than 98 % and has 170-times the moisture loss resistance [17].

Therapeutic applications of moisturizers

Moisturizers provide a slew of additional benefits in addition to protecting moisture (Figure 6).

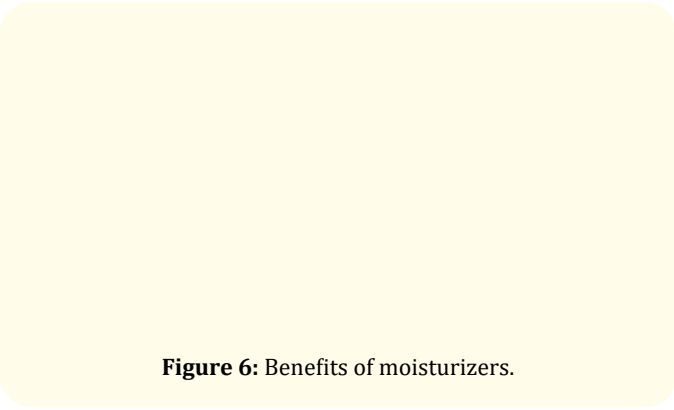


Figure 6: Benefits of moisturizers.

Anti-inflammatory

Some moisturizer ingredients, such as glycyrrhetic acid, palmitoyl-ethanolamine, telmestaine, *Vitis vinifera*, ceramide-dominant barrier repair lipids, and filaggrin breakdown products, have anti-inflammatory properties through a variety of mechanisms, including blocking cyclooxygenase activity and down-regulating cytokines and pro-inflammatory prostanoids production and providing soothing moisturizing ingredients [18].

Antipruritic

Water-based moisturizers offer a cooling effect by evaporating water on the skin's surface, and some moisturizers may include menthol as an ingredient, which produces a cooling feeling and therefore reduces itch symptoms [19].

Antimitotic

Mineral oils contain low-grade epidermal antimitotic characteristics, which can aid with dermatitis like psoriasis, which already has increased epidermal mitotic activity [20].

Wound healing

Wound healing is seen to be improved while using hyaluronic acid [21].

Significance of moisturizers to mitigate dermatitis and dry skin

Moisturizers can help with some dermatitis that is caused by dry skin. Skin dryness is caused by a complex interaction of environmental and individual factors. Low humidity, low ambient temperature, chemical exposures, germs, aging, psychological stress, atopic dermatitis, and eczema are all significant factors. This study focuses on the therapeutic use of moisturizers in dermatitides such as atopic, seborrheic, contact, and nummular dermatitis [22].

Atopic dermatitis

Itching and a weakened skin barrier characterized atopic dermatitis, a chronic inflammatory skin disease. Atopic dermatitis is caused by genetic abnormalities in the skin structural protein glycoprotein, which causes the skin barrier to fail and atopic dermatitis to develop and worsen. These mutations stop the synthesis of glycoprotein, a structural protein that protects the skin's first-line defense, the epidermal barrier. Gene that produces deficiency impairs the skin barrier, allowing for increased trans-epidermal water loss and easier exposure to allergens and pathogenic organisms via the skin, resulting in persistent skin irritation [23].

For atopic dermatitis maintenance and supplementary therapy, recent Asian-Pacific area consensus recommendations advocate using a moisturizer daily. It stressed the need of considering ambient humidity, climate, skin type, and degree of dryness while choosing a moisturizer. In addition, the length of atopic dermatitis, its severity, the patient's age, treatment adherence, and financial means should all be considered. Adjuvant characteristics, aesthetic acceptance, and product availability are further factors to consider.

Seborrheic dermatitis

Seborrheic dermatitis is a recurring, chronic inflammatory skin condition that mostly affects men. Due to the number of cutaneous lipids produced by increased androgen-driven sebaceous gland growth and sebum production, onset may occur throughout puberty. The scalp, face, and chest expressing area are often affected by seborrheic dermatitis. The middle chest, axillae, and vaginal area are all implicated in some instances. Pruritus is common however it isn't always found. Several nonsteroidal therapy alternatives, such as ketoconazole 2%, ciclopirox 1%, pimecrolimus 1%, or nonsteroidal topical device cream, are used twice daily to treat mild to severe seborrheic dermatitis. Many people respond positively to such treatment. Many individuals with moderate symptoms get remission from seborrheic dermatitis within 1 to 4 weeks. Topical corticosteroids can be stopped immediately or tapered down over 1 to 2 weeks if the symptoms have gone or the lesion has vanished. This generally happens within the first several days. To avoid recurrence, the nonsteroidal medicine should be taken for at least a few more weeks. There is no one-size-fits-all treatment for seborrheic dermatitis. Clinicians should customize their seborrheic dermatitis treatment plans depending on the severity of the condition, how well it responds to treatment, and the risk of relapse [24].

Contact dermatitis

Contact dermatitis is a frequent skin irritation caused by external substances that causes pruritic and erythematous skin lesions. It is split into two categories: irritating and allergic. Avoiding irritants and allergens is the first line of protection against irritant and allergic contact dermatitis. It can be done through a variety of methods, including the removal of substances, substitution, training, and work task rotation. Squalane is a saturated form of squalene that has had its double bonds removed by hydrogenation, making it oxidation resistant and helpful as a moisturizer. While technically an oil, squalane has the benefits of being less oily, odorless, non-comedogenic, antibacterial, and appropriate for sensitive skin. It can be used to treat atopic dermatitis, contact dermatitis, and seborrheic dermatitis [25].

Nummular dermatitis

Nummular dermatitis (sometimes called nummular eczema) is an eczematous condition characterized by pruritic coin-shaped spots on the skin that are frequently misdiagnosed as ringworm or psoriasis. Nummular dermatitis strikes men later in life, whereas it affects women sooner. The cause is unknown, although most patients have very dry skin, which allows allergens to penetrate the

epidermis. Some cases of nummular dermatitis may be caused by contact dermatitis caused by nickel, cobalt, or chromates. Lower-extremity involvement may cause venous insufficiency, stasis dermatitis, and swelling. Lesions are frequently symmetrical and many cm in diameter. Excoriation may have caused underlying erosions. Lichen simplex chronicus can form from scraped old lesions on the lower legs, neck, scalp, or scrotum. The face and scalp are never affected by nummular dermatitis [26].

Sunscreen products

Photo-protectors, particularly sunscreen, have been shown to have an important role in decreasing the occurrence of UV-induced human skin diseases (pigment symptoms and skin aging). Sunscreen was initially sold in the United States in 1928, and it has since been an essential element of photo-protection strategies all around the world. Its ability to absorb, reflect, and scatter sunlight has been shown to prevent and decrease the harmful effects of UV radiation.

The sun protection factor (SPF) and UVA protection grade (PA) values of sunscreen influence its photo-protective effectiveness. According to FDA regulations, commercial goods must be labeled with SPF ratings that represent how long and how effectively they

Classification of sunscreen agents

Sunscreen agents are divided into inorganic and organic UV filters, each of which has a different mode of action when exposed to sunshine. Inorganic agents reflect and scatter light, but organic blockers absorb high-energy UV radiation, as seen in (Figure 8) [28].

will protect customers from UV rays. SPF ratings range from 6-10, 15-25, 30-50, and 50+, corresponding to low, medium, high, and extremely high sun protection, respectively. Despite this, there are a few common misunderstandings concerning the SPF. According to some sources, an SPF 15 sunscreen can absorb 93 percent of endogenous UV rays, whereas an SPF 30 sunscreen can block 93% or a little over 3% more [27].

Types of sunscreen

Sunscreens have been incrementally enhanced throughout decades of development, coinciding with the introduction of new photo-protective compounds. Sunscreen has been an integral part of photo-protection systems all across the world since then. Its ability to absorb, reflect, and scatter sunlight has been discovered to defend against and lessen the harmful effects of UV radiation. There are four of them in all, each labeled with the type of sunscreen that it provides (Figure 7).

Figure 7: Different types of sunscreen.

Figure 8: Classification of Sunscreen agents.

Therapeutic applications of sun protection products

Sunscreen with antioxidants and anti-aging

To obtain the beneficial advantages of natural agents, several sunscreens have been produced by combining one or more natural components (e.g., extracts and nutritional compositions) with conventional chemicals (e.g., TiO₂, ZnO, and benzoate derivatives). These products, in particular, are safe and capable of alleviating harmful effects by reducing inorganic and organic chemical usage. People with rosacea and other sensitive skin types can benefit from a water-soluble sunscreen solution containing TiO₂ and 5-hydroxytryptophan produced from *Griffonia simplicifolia* [29].

Sunscreen Combined with DNA repair enzyme

There is no disputing that UV radiation may penetrate deep into the skin and cause harm to the cells that cause skin cancer. While damaged DNA is not repaired, the effects are substantial, especially after decades of recurrent damage, including tone loss, hyperpigmentation, wrinkle development, and skin cancer. The damage manifests itself in the early stages as a variety of signs, including loss of texture and tone, hyperpigmentation, and wrinkle development. Skin malignancies may develop in the later stages. Traditional sunscreens, on the other hand, only provide “passive photo-protection” and are ineffective once UV damage has occurred. As a result, by combining antioxidants with liposome-containing DNA repair enzymes, an “active photo-protection” method has been developed, which might be an improved photo strategy to cover the existing gap in sun protection [30].

Sunscreen against environmental pollutants

Pollutants such as particulate matter (PM), poly-aromatic hydrocarbons (PAH), sulfur oxides (SO₂), and nitrogen oxides (NO_x) can harm the skin in addition to UV radiation. These pollutants have been shown to cause inflammation, hyperpigmentation, and collagen breakdown, which can result in skin dryness, dark spots, loss of firmness, uneven skin tone, acne exacerbation, and wrinkle development [31].

Sunscreen against blue light

Sunlight or electronic gadgets such as smartphones, tablets, and computers emit blue light (380-500 nm). It is beneficial in photodynamic treatment when a combination of photosynthesizing medication and a high-intensity light source is used to treat cancer because of its high energy. As a result, skin protection against blue light is required. Some sunscreens, such as SKEYDOR’s “Sun Expertise (SPF 50+)” and Murad’s “City Skin Age Defense (SPF 50 and

PA+++),” have recently enhanced their capacity to protect against blue light. UV filters may be able to break past the UVB and UVA limits and continue into the blue light spectrum. Vitamins and microalgae have also been suggested as ingredients in UV filters to help the skin’s defense [32].

Sunscreen against thermal IR

It has also been claimed that IR rays, which account for 54.3 percent of total solar energy reaching Earth, are harmful to human skin. Because of its capacity to penetrate the epidermis, dermis, and subcutaneous tissues, this radiation can be a harmful element that destroys skin collagen content by producing ROS radicals and increasing MMP-1 and MMP-9 activity in the same way as UV rays do [33].

Face masks

UV exposure (sun damage), aging, dehydration, stress, medication, and the sort of skincare routine you use can all affect the delicateness of your skin. Cosmetics should be non-acnegenic, non-comedogenic, and hypoallergenic to have a beneficial effect on the skin. Facial masks are readily available products that may be applied quickly and provide instant skin benefits. To give the masks rejuvenation properties, moisturizers exfoliates, lightening and herbal components, different vitamins, proteins, minerals, growth factor (GF), and other materials like honey and coenzyme Q10 are included [34].

Types of face masks

There are a variety of face masks available on the market today, each with its own set of effects. To design a suitable face mask, additional studies on cellular and molecular signaling pathways, as well as a thorough knowledge of their significance when applied topically, will be essential. Figure 9 is showing the various types of masks.

Figure 9: Types of mask.

Sheet mask

The sheet mask is an older form of mask that is more widely accessible than other varieties due to its long history on the market. According to recent research done by the National Purchase Diary Panel Inc. organization in the United States, mask sales grew by almost 60%, outpacing all other categories in the skincare industry [35].

Rinse-off mask

There are many different types of rinse able masks available, including moisturizing, cleansing, toning, exfoliating, waxy, and mud masks. On dry skin, waxy masks are frequently used to regulate epidermal hydration and reduce transepidermal water loss. The balance of water content between the stratum corneum and the lipids on the skin's surface is crucial to the look of the skin. Polyherbal formulations are particularly promising in this regard due to their ability to maintain moisture and natural organic sources. Synthetic chemicals can also be found in moisturizers, however, they have certain drawbacks. The herbal mask is a type of rinse-off mask that is both non-allergenic and non-toxic. Grace., *et al.* created a herbal mask that promotes blood circulation, rejuvenates the skin, and restores suppleness using *Cajanus cajan*, green gram, sandalwood, almond, turmeric, rose petals, and green tea leaves [36].

Peel-out mask

Some materials, such as clay, which is commonly used in cosmetic preparations, do not have a good and convenient application; as a result, they are immobilized on the substrate for easy use. These masks leave a thin film on the skin that may be easily pulled away. The majority of peel-off masks contain polyvinyl alcohol (PVA) or polyvinyl acetate (PVAC), both of which induce occlusion and a tensor effect. The mask can contain a variety of ingredients, including herbal soap, moisturizer, plasticizer, perfumes, and preservatives. Masks come in a variety of compositions, but their application is typically the same. Drying agents, such as alcohol, and matrix concentration control [2] Nilforouszadeh., *et al.* Alcohol is commonly used as a drying agent that regulates the application time due to its lower moisture content than water. The viscosity, film formation, and application thickness are all determined by the matrix concentration. This concentration should be adjusted to provide a mask that is suitable for the application [37].

Hydrogel mask

Water may be absorbed many times the gel weight in hydrogels, which are 3D networks of polymers. Hydrogel masks, which have

cooling and relaxing properties, are commonly used on sensitive skin. As a face mask, silk sericin embedded in cellulose fibers was used, and it displayed the necessary biological properties for facial therapy. *Dillenia's* gelatinous pulp was utilized to make a gel-like face mask. It had the right viscosity, pH, and antioxidant characteristics, according to the researchers. An anti-acne gel containing antimicrobial, antioxidant, and anti-inflammatory *Neem* leaf hydrocolloids was developed for use as a face mask [38].

Exfoliators

Exfoliation is the procedure for eliminating dead skin cells from the skin's top layer. To maintain your skin healthy and attractive as you get older, you'll need to take additional care of it. By eliminating dead skin cells from the epidermis, showing freshly produced skin cells on the surface, and promoting cell development in the subepidermal layer, herbal exfoliators (HEs) relieve age-related alterations and neutralize environmental assaults. This shedding of the outer dead cell layer also aids in the unclogging of skin pores and the general cleanliness of the skin.

Type of exfoliators

The natural exfoliation of these dead skin cells may take a long period, resulting in skin pore blockage and congestion. Internal factors such as health, age, and the quantity of moisture in the skin, as well as exterior ones such as protective coverings, temperature, and weather conditions, influence how quickly natural exfoliation occurs. With the aid of HEs, these dead cells may be eliminated [39]. Figure 10 shows the categorization of exfoliation.

Figure 10: Types of Exfoliators.

Mechanical skin exfoliation

Any type of topical skin exfoliation that is applied to the skin by hand with fingers or an applicator is known as manual skin

exfoliation. It's excellent for people with normal skin. Microfiber cloths, adhesive exfoliation sheets, micro-bead facial washes, crepe paper, crushed apricot kernels or nutshells, sugar or salt crystals, or pumice, as well as abrasive sponges and brushes, are all used in mechanical exfoliation. Use micro-bead face scrubs to gently exfoliate the skin and remove the top layer of skin. Acid peels are a more severe kind of exfoliation that involves utilizing a laser to remove the top layers of the skin [40].

Chemical exfoliation

Creams, lotions, and gels are used in this form of exfoliation. Scrubs using salicylic acid, glycolic acid, fruit enzymes, citric acid, or malic acid, which may be administered in high quantities by a dermatologist or at lower amounts in over-the-counter products, are examples of chemical exfoliants. Exfoliation using alpha hydroxy acids (AHAs), beta hydroxy acids (BHAs), or enzymes loosens the glue-like material that binds the cells together and allows them to slough off. This form of exfoliation is recommended for acne sufferers. Retinol (vitamin A) has been used in exfoliation formulations in recent years because the skin can convert it to retinoic acid, a powerful skin exfoliator, and anti-aging agent. When taken regularly, retinol has been found to decrease the visible symptoms of both photo-aging and normal chronological aging [41].

Enzyme exfoliation

Papain from papaya, bromelain from pineapple, and an enzyme from pumpkin are the most common plant enzymes used in skin exfoliation. Enzyme exfoliators are a good alternative for those with sensitive skin who can't use acid exfoliators. Its action is not pH-dependent like AHAs; instead, water initiates it, and the quantity of exfoliation it may cause is restricted [42].

Skin benefits and applications of exfoliators

The benefits of exfoliators for various skin types are shown in figure 11.

Figure 11: Benefits of skin exfoliators.

Aged and mature skin

In elderly skin with thin epidermis and atrophied dermis, the fatty tissues of the hypodermis may also deteriorate. The texture of the dermal tissue alters when the collagenous strands combine into large bundles. As the number of functional sweat glands decreases, blood circulation in the skin's tiny capillaries reduces, and sweat production declines. As people become older, the normal shedding of aged cells from the skin becomes more difficult, resulting in a dull, thick, and toneless appearance [43].

Acne skin

Acne skin generates five times as many dead skin cells as other skin diseases, and exfoliation can help acne skin greatly. Dead skin cells blocking hair follicles and contributing to acne can be prevented using hydroxy acids [44].

Hyperpigmentation

Hyperpigmentation is a darkening of the skin induced by an increase in melanin or melanocytes, or by the deposition of colored material on the skin. Exfoliation aids in the faster shedding of pigmented cells and the lightening of age spots. The exfoliant's special components enable it to efficiently penetrate a hyper-pigmented region at its cause [45].

Dehydration

The absence of moisture in dehydrated skin causes cellular barrier breaches, leaving skin stiff and stretched. Excessive miniaturization results in a dull, uneven complexion [46].

Photodamage

Photodamage occurs when the epidermis and dermis are exposed to UV rays from the sun. Acute and persistent alterations in the DNA, protein, and lipid building blocks can be caused by UV radiation. Sunburn, photo-toxicity, photo-allergy, cutaneous degeneration, and actinic elastosis are some of the acute consequences. Due to hypertrophy of elastic tissues and changes in collagen fibers, photo-damaged skin looks thicker (actinic keratosis) and less elastic. Exfoliation may aid patients with sun-damaged skin that contains possibly cancerous cells in removing these cells before they become harmful, perhaps preventing skin cancer [40].

Conclusion

Infection prevention is an essential component of skincare formulations because the skin is a particularly vulnerable portion of the body that may be easily affected by a variety of external ailments. This study focuses on specific clinical characteristics of moisturizers to aid health care providers in prescribing and en-

couraging optimal moisturizer application, especially for therapeutic purposes to relieve symptoms of various forms of dermatitis. The photo-protective efficiency of sunscreen is determined by its sun protection factor (SPF) and UVA protection grade (PA) values. Commercial items must be labeled with SPF ratings that reflect how long they will protect the customer from UV radiation and how effective that protection is, according to FDA rules. Today's market offers a wide range of face masks, each with its unique set of benefits. Future research into cellular and molecular signaling pathways, as well as a thorough knowledge of their significance when applied topically, will be crucial in developing a suitable face mask. Regular exfoliation and moisturizing are crucial for healthy skin. Daily exfoliation with a light, creamy herbal scrub encourages the creation of new cells while minimizing the accumulation of dead skin cells on the surface.

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