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Research Article

COSMECEUTICALS AN EMERGING CONCEPT: A COMPREHENSIVE REVIEW

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ABSTRACT

The term Cosmeceuticals was introduced by Albert Kligman in 1984 to refer to substances that exerted both cosmetic and therapeutic benefits. Cosmeceuticals represent one of the most promising, yet challenging treatment options available to physicians. They are the fastest growth segment in the skin-care market, and a number of topical Cosmeceuticals treatments for conditions such as photoaging, hyper pigmentation, and wrinkles have Cosmeceuticals refer to the combination of cosmetics and pharmaceuticals. Cosmeceuticals are cosmetic products with biologically active ingredients purporting to have medical or drug-like benefits. Cosmeceuticals are used for nourishing as well as improving the appearance of the skin, and are also documented as effective agents for treating various dermatologic conditions.Cosmeceuticals improve appearance by delivering nutrients necessary for healthy skin.

Keywords: Cosmeceuticals, sunscreen agents, moisturizing agent, Anti aging.

INTRODUCTION[1-11]

Cosmeceuticals are cosmetic products with biologically activeingredients purporting to have medical or drug-like benefits. ACosmeceuticals is an ingredient with medicinal properties thatmanifests beneficial topical actions and provides protection againstdegenerative skin conditions. The word "Cosmeceuticals" waspopularized by Albert M. Kligman in the late 1970s. It encompassescosmetic actives with therapeutic, disease fighting, or healingproperties, serving as a bridge between personal care products andpharmaceuticals. Like cosmetics, Cosmeceuticals are topicallyapplied, but they contain ingredients that influence the biologicalfunction of the skin.[1] Cosmeceuticals improve appearance bydelivering nutrients necessary for healthy skin. Cosmeceuticalstypically claim to improve skin tone, texture, and radiance, whilereducing wrinkling. Cosmeceuticals are the fastest-growingsegment of the natural personal care industry[2]. Consumers are always interested in maintaining a youthful appearance, and as the global population's median age increases,this market is increasingly expanding. According to the United StatesFood and Drug Administration (FDA), the Food, Drugs, andCosmetics Act;A product can be a drug, a cosmetic, or a combinationof both, but the term "Cosmeceuticals" has no meaning under the law".

So the term Cosmeceuticals is not recognized by the Federal Food,Drug, and Cosmetic Act. Although cosmetics and Cosmeceuticals aretested for safety, testing to determine whether beneficial ingredientsactually live up to a manufacturer's claims is not mandatory. Ingeneral, vitamins, herbs, various oils, and botanical extracts may be used in Cosmeceuticals, but the manufacturer may not claim that these products penetrate beyond the skin's surface layers or thatthey have drug like or therapeutic effects.

The Food, Drug, and Cosmetic Act defines cosmetics by their intended use, as 'articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance.' Among the products included in this definition are skin moisturizers,

perfumes, lipsticks, fingernail polishes, eye, and facial makeup preparations, shampoos, permanent waves, hair colors, toothpastes, and deodorants, as well as any material intended for use as a component of a cosmetic product.[3] These Cosmeceuticals, serving as a bridge between personal care products and pharmaceuticals, have been developed specifically for their medicinal and cosmetic benefits.

Tracing the origin of cosmetics, the first recorded use of cosmetics is attributed to Egyptians, circa 4000 BC. The ancient Sumerians, Babylonians, and Hebrews also applied cosmetics. In other cases, such as European cosmetic known as Ceruse was used from the second century to the 19th century.Cosmeceuticals active ingredients are constantly being developed by big and small corporations engaged in pharmaceuticals, biotechnology, natural products, and cosmetics, while advances in the field and knowledge of skin biology and pharmacology have facilitated the cosmetic industry's development of novel active compounds more rapidly. Desirable features of Cosmeceuticals agents are efficacy, safety, formulation stability, novelty, and patent protection, metabolism within skin and inexpensive manufacture.[4]Cosmeceuticals represent the fastest growthsegment in the skin-care market, and a number of topical Cosmeceuticals treatments for conditions suchas photo aging, hyper pigmentation and wrinkles have come into widespread use[5,6]. In 2005, the U.S.Cosmeceuticals market was estimated to be $12.5 billion and projected to grow to over $16 billion by2010[7].While Cosmeceuticals have become established tools in the treatment of photoaging in dermatologicpractices, their general application to wound healing has yet to be fully explored. Wound healing is acomplex process that, when impaired, results in many untoward effects such as ulcers, dehiscence,hypertrophic scars and keloids.[8]Cosmeceutically active ingredients are constantly beingdeveloped by big and small corporations engaged inpharmaceuticals, biotechnology, natural products, andcosmetics, while advances in the field and knowledge of skincream containing a hormone such as estrogen results in a freshappearance with a rejuvenating effect[9]. Kuno and Matsumotohad patented an external agent for the skin comprising anextract prepared from olive plants as a skin-beautifying component, in particular, as an anti-aging component for theskin and/or a whitening component[10]. Novel cosmetic creams or gels with active ingredients and water-soluble barrier disruptionagents such as vitamin A palmitate have been developed toimprove the deteriorated or aged skin[11].

SKIN CARE COSMECEUTICALS[12-17]

Cosmetics and skin care products are the part of everyday grooming. Protecting and preserving the skin is essential togood health. Our skin, the largest organ in the body, separates, and protects the internal environment from the external one.

Environmental elements, air pollution, exposure to solar radiation as well as normal aging process cause cumulative damage to building blocks of skin – DNA, collagen, and cell membranes. Use of cosmetics or beauty products will not cause the skin to change or heal; these products are just meant to cover and beautify.

Cosmeceuticals being cosmetic products having medicinal or drug-like benefits are able to affect the biological functioning of skin owing to type of functional ingredients they contain. There are skin-care products that go beyond coloring and adorning the skin. These products improve the functioning/texture of the skin by encouraging collagen growth by combating harmful effects of free radicals, thus maintaining keratin structure in good condition and making the skin healthier. OLAY vitamin line, which includes vitamins A, C, D, E,selenium, and lycopene, pycnogenol plus zinc and copper, is awell-known skin care line[12].The treatment of aging skin with acream containing a hormone such as estrogen results in a freshappearance with a rejuvenating effect[13].Kuno and Matsumotohad patented an external agent for the skin comprising anextract prepared from olive plants as a skin-beautifyingcomponent, in particular, as an anti-aging component for theskin and/or a whitening component[14]. Dry emollient preparationcontaining monounsaturated Jojoba esters was used forcosmeceutical purpose[15]. Martin utilized plant extract of genusChrysanthemum in a cosmetic composition for stimulating skinand/or hair pigmentation[16]. Novel cosmetic creams or gelswith active ingredients and water-soluble barrier disruptionagents such as vitamin A palmitate have been developed toimprove the deteriorated or aged skin[17].

Sunscreen Agents[18]

Use of sunscreen agents and limiting the exposure to sun preventsearly wrinkling and skin cancer. Sunscreen agents are used toprevent sunburns. There are two kinds of sunscreen agents: chemical and physical.

Chemical sunscreen agents protect the skinfrom the sun by absorbing the ultraviolet (UV) and visible sun rays,while physical sunscreen agents reflect, scatter, absorb, or block therays. Sunscreen agents often may comprise more than oneingredient.

For example, products may contain an ingredient that providesprotection against the ultraviolet A (UVA) sun rays and anotheringredient that protects from the ultraviolet B (UVB) sun rays, whichare more likely to cause sunburns than the UVA sun rays. Ideally,coverage should include protection against both UVA and UVB sunrays. The sun protection factor (SPF) that is present on the label ofthese products reflects the minimum amount of UVB sunlight that isneeded with that product to produce redness on sunscreenprotectedskin as compared with unprotected skin. Sunscreenproducts with high SPFs provide more protection against the sun.

The following sunscreen agents have been recommended by the U.S.

Department of Health:

• Cycloform (isobutyl p-amino benzoate)
• Propylene glycol p-amino benzoate
• Monoglyceryl p-amino benzoate
• Digalloyl trioleate
• Benzyl salicylate and benzyl cinnamate (2% each)

Besides these, chemical sunscreens mainly based on para-aminobenzoic acid, its derivatives, cinnamates, various salicylates andbenzophenones, dibenzoylmethanes, anthraline derivatives,octocrylene and homosalate are frequently employed as sunblocking agents. Direct physical blockers include metal containingcompounds such as iron, zinc, titanium, and bismuth. Zinc oxide and titanium dioxide are highly reflective white powders,but submicron zinc oxide or titaniumdioxide powder particlestransmit visible light while retaining their UV blocking properties,thus rendering the sun block invisible on the skin. Othercommercially available sunscreens are Benzophenone-8, NeoHeliopan MA and BB, Parsol MCX and HS, Escalol 557, 587, and 597[18].

Moisturizing Agents[19-27]

Stratum corneum is the primary barrier of the skin whose one ofmain purpose is to keep inside in & outside out. This barrier is richin cholesterol, free fatty acids, and ceramides. Many oilypreparations have been used to maintain the fluidity of the skin(Mineral oil, Lanolin, cyclomethicone, etc.). Water from the stratum corneum gets evaporated very quickly leading to dehydration. This dehydration of skin can be averted by using moisturizers which provide flexibility to the skin. Humectants are cardinal ingredients of the moisturizing formulations. Humectants also help in preventing drying out of the formulations. When moisturizers are applied to the skin, a thin film of humectants is formed which retains moisture and imparts better appearance to the skin. Bio-mimetic lipid containing formulations facilitate in normalizing the damaged skin. Water can cause the excretion of cytokines when applied to the skin for a prolonged period of time. This may further lead to edema, vasodilatation, and inflammation gets induced. Moisturizers by hydrating the skin make the stratum corneum softer & can even alter physiology of skin. Ceramide containing moisturizers are very popular as these contain the same balance of lipids as our skin. There are nine different types of ceramides in the stratum corneum named as ceramide[19-27].theyconstitute 40-50% of the lipids in this outermost layer.

It has beenproven that these substances help to treat eczema, and can even beused for dry skin. Fluocinolide containing ceramides formulationhas been found to reduce eczema[5]. besides these, black cohosh, soy extract, and vitamins A and E also help in augmenting the skin'snatural moisture balance. Complex mixture of hyaluronic acid and arevival complex containing green tea leaf extract, and glutathioneare also promising moisturizing agents[18].

Skin Lightening Agents[28]

Hyperpigmentation is the changing of color intensity of the skin todarker hue, which is due to an increased amount of melanin in theepidermis, the dermis, or both. This change can be due to 2pathophysiologic processes: melanocytosis (increased number ofmelanocytes) and melanosis (increased amount of melanin). Skinlightening agents work best when melanosis or melanocytosis isconfined to the epidermis. Patients with Fitzpatrick skin types IIIIhave advantage over type- IV such as type I-III benefit from localpigment lightening for the treatment of hormonally inducedmelasma and postinflammatory hyper pigmentation caused by acneand trauma, whereas those with Fitzpatrick skin types IV and darkermay also seek therapy for pigmentary changes that occur around the eyes, in the intertriginous areas, following dermatitis, or with acneand trauma.[28] Standard dermatologic agent for skin lighteningis hydroquinone but its safety is questionable, leading to the use ofalternative agents such as retinoid, mequinol, azelaic

acid, arbutin,kojic acid, aleosin, licorice extract, ascorbic acid, soy proteins,and N -acetyl glucosamine.
The following ingredients are most commonly usedCosmeceuticals, some of them listed below,

Boswellic acids[29]
It is obtained from Boswellia serrata. The mainfunction is to inhibit the enzymes responsible for Inflammation (5 - lipoxygenase) and damage of theskin.[29]

Tetrahydrocurcuminoids
It is obtained from white (colour free) curcuminoids ofturmeric (curcuma longa) carnosic acid, cosmarinic acid,ursolic acid from rosemary extract Rosemarimusofficinalis as anti oxidants are the other compoundswhich are used to facilitate the tissue damage andrestoring the healthy status of skin[29].

Retinoid
A great amount of research has concentrated onits use as an antiaging compound as well as its use forother cutaneous disorders. Vitamin A and its derivativeshave 2 main functions: they act as antioxidants, and theyactivate specific genes and proteins. Structural changes underlying the cosmetic benefits include correction ofepidermal atrophy, deposition of new collagen, generation of new vessels, and enhancement ofmitogenesis. This enhanced mitogenesis promotes the shedding of melanin-laden keratinocytes, resulting inbleaching and subsequent depigmentation. The ability oftopical tretinoin to improve the appearance of aged andphoto-damaged skin by reducing wrinkles, decreasinglaxity, bleaching hyper pigmented spots, and bringingabout a smoother surface have been well studied anddocumented.

Hydroxy acids
Hydroxy acids are organic carboxylic acidsclassified into alpha hydroxy acids (AHAs) and betahydroxy acids (BHAs) according to their molecularstructure. Many are derived from natural sources and areoften referred to as fruit acids. The different AHAsinclude the following: glycolic acid, lactic acid, citricacid, mandelic acid, malic acid, and tartaric acid. AHAshave been shown to decrease the signs of aging. The skinappears smoother and more uniform.BHAs are aromatic compounds. Salicylic acid isthe reference BHA; it has dermolytic properties and helps in various xerotic and ichthyotic disorders. Other BHAsinclude 2-hydroxy-5-octanoyl benzoic acid, also knownas beta-lipohydroxyacid (B-LHA), and tropic acid.Studies show that AHAs may increase sensitivity to UVradiation and that sunscreen application may be advisablewhen these products are used.

Antioxidants
In addition to these external insults like UVradiation, drugs, air pollutants, and heat and/or cold, theskin also has to cope with endogenous mitogens, mostimportantly reactive oxygen species (ROS) and other freeradicals. These species are continuously produced during physiological cellular metabolism. To counteract theharmful effects of ROS, the skin is equipped with anantioxidant system to maintain equilibrium between thepro-oxidants, or damaging agents, and the antioxidants, or protective agents; these antioxidants intervene atdifferent levels in the protective process.Here some of the antioxidants are listed below,

Vitamin C
Vitamin C is necessary for the hydroxylation ofprocollagen, proline, and lysine. Vitamin C improves andnormalizes the changes caused by photodamage.VitaminC has been used effectively to stimulate collagen repair,thus diminishing some of the effects of photoaging onskin. However, vitamin C is easily degraded by heat andlight, which along with its high acidity, presents certainchallenges for use in a multipurpose skin careformulation. A recently introduced synthetic collagenfraction offers greater stability and compatibility, alongwith improved efficacy.

Vitamin E
Vitamin E (alpha-tocopherol) is the majorlipophilic antioxidant in plasma, membranes, and tissues.The term vitamin E collectively refers to 30 naturallyoccurring molecules (4 tocopherols and 4 tocotrienols),all of which exhibit vitamin E activity. Its major role isgenerally considered to be the arrest of chain propagationin lipid peroxidation by scavenging lipid peroxyl radicals,hence protecting the cell membrane from destruction.Vitamin E topically applied before UV irradiation hasbeen shown to reduce erythema, edema, sunburn cells, immune suppression caused by sunlight, and DNA adducts formation.

Panthenol
Panthenol, the alcohol analog of vitamin B-5, iswater-soluble humectants commonly found in variouscommercial skin creams, lipsticks,

lotions, and hairpreparations. It is stable in the presence of oxygen andlight but unstable in the presence of acids, bases, andhigh temperatures. Panthenol is converted in the skin topantothenic acid, which is an important component oncoenzyme A essential for normal cellular metabolism.

Lipoic acid
Lipoic acid is a unique free radical protector. It isfat and water soluble. Once lipoic acid crosses the cell membrane, it is broken down into dihydrofolic acid,which is also an antioxidant. Alpha lipoic acid alsorecycles other key antioxidants, such as vitamin C,

Niacinamide[30, 31, 32]
Niacinamide is stable in the presence of oxygen,acid, and high temperatures, and it is inexpensive toformulate.[30] Most of its known effects are the result ofincreased epidermal turnover and exfoliation.[31] Topicalkinetin and niacinamide have been found to exert asynergistic antiaging cutaneous effect in people in theRepublic of China[32].

Dimethylaminoethanol
Topical preparations containing dimethylaminoethanol (DMAE) have been touted fortheir ability to improve skin firmness and to lift saggingskin. DMAE is able to diminish the cross-linking ofproteins that occurs during aging, probably acting as afree-radical scavenger.
Spin trapsFree radical spin traps are species that react withreactive free radicals to produce fairly stable, unreactivefree radicals, thus blocking the free radicals fromdamaging cellular components.

- DMPO (5,5-dimethyl-1-pyrroline-N -oxide)
- DEPMPO (5-diethoxyphosphoryl-5-methyl-1-pyrroline-N-oxide)
- TEMPONE-H (1-hydroxy-2,2,6,6-tetramethyl-4-oxo-piperidine).

Melatonin
Melatonin, a hormone secreted by the pineal gland.This beneficial action of melatonin has been explained interms of its ability to scavenge free radicals and toaugment the activities of antioxidant enzymes. It has beenshown to suppress UV radiation–induced erythema.

Catalase
Catalase, an enzyme present in almost all cells of thehuman body, catalyzes the decomposition of hydrogenperoxide to water and oxygen. High amounts of thisenzyme in the skin can impart antioxidative activity.

Glutathione
Glutathione is a tripeptide of glutamic acid, cysteine,and glycine. It is found in all active animal tissue. It isfundamental as an antioxidant, and significantlydecreased amounts of glutathione are found after UVexposures.

Superoxide dismutase
Superoxide dismutase (SOD) is an enzyme thatdestroys superoxide (a highly ROS). SOD is a largemolecule and has difficulty penetrating deep into theskin. In theory, once in the lower epidermis and dermis,SOD should decrease UV erythema and damage and actas an excellent antioxidant.

Glucopyranosides
Resveratrol and polydatins are glucopyranosidesfound in many fruits and vegetables, the highest Concentrations being found in grape skins, whichsynthesize these compounds in response to exposure toUV-A and UV-B and fungal pathogens.

Polyphenols
Polyphenolic compounds (e. g, catechins,flavonols, thioflavins, thearubigins), also known asEpicatechins are antioxidant in nature. These compounds,tested against human keratinocyte cells stressed by UV-Birradiation, showed high antioxidative properties.

Cysteine
Several recent studies have shown that cysteinederivatives can protect against the negative effects of UVexposure. In particular, N- acetylcysteine (NAC) isshown to be an effective protector against UV-B–inducedimmunosuppression.

Allantoin
Allantoin promotes cell proliferation, aiding inthe healing process. Allantoin has long been known toenhance the effectiveness and desirability of cosmeticcreams and lotions by its action as a skin protectant.Allantoin has been incorporated into shampoos, lipsticks,shaving creams, suntanning products, bath foams, hairgels, baby powders, and various aerosol preparations.Allantoin has been called a cell proliferant, anepithelization stimulant, and a chemical debrider. It issaid to clean away necrotic tissue, hastening the growthof new healthy tissue.

Furfuryladenine

Furfuryladenine (Kinerase) is a natural plantgrowth factor that retards the aging process in plants. Cutleaves dipped in a solution that contains furfuryladenineremain green, while untreated leaves turn brown. It ismarketed as the natural evolution of antiaging treatmentwith similar effects in vitro on human skin cells as that inplants, helping to slow and reverse alterations thatnaturally occur in the cell-aging process.

Uric acid

In the past, uric acid was generally looked upon asmerely an end product of purine metabolism. Morerecently, uric acid has become increasingly recognized asan important biological antioxidant.

Carnosine

Carnosine (beta-alanyl-L-histidine) is aphysiological dipeptide that can rejuvenate senescentCultured human fibroblasts. Carnosine has been shown tocontain antioxidant, free radical- and metal ion–scavenging activities.

Depigmenting Agent[30]

Hyperpigmentation is the result of an increasedamount of melanin in the epidermis, the dermis, or both.This pigmentary change can be divided into 2pathophysiologic processes: melanocytosis (increasednumber of melanocytes) and melanosis (increasedamount of melanin). Depigmenting agents work bestwhen melanosis or melanocytosis is restricted to theepidermis. Depigmenting agents can be divided intoseveral groups

Phenolic compounds include the following:

· Hydroquinone
· Monobenzylether of hydroquinone
· 4-Methoxyphenol
· 4-Isopropylcatechol
· 4-Hydroxyanisol
· N -acetyl-4-S-cysteaminylphenol

Nonphenolic compounds include the following:

· Corticosteroids
· Tretinoin
· Azelaic acid
· N -acetylcystein
· L-ascorbyl-2-phosphate
· Kojic acid

Combination formulas include the following:

· Kligman's formula
· Pathak's formula
· Westerhof's formula

Hair Cosmeceuticals[33-42]

The appearance of the hair is a feature of the body over which humans, unlike all other land mammals, has direct control. One can modify the length; color and style of hair according to how one wish to appear. Hair care, color, and style play an important role in people's physical appearance and self-perception. Among the earliest forms of hair cosmetic procedures in ancient Egypt were hair setting by the use of mud and hair coloring with henna. In ancient Greece and Rome, countless ointments and tonics were recommended for the beautification of the hair, as well as remedies for the treatment of scalp diseases.

Henry de Mondeville was the first to make a distinction between medicinal therapies intended to treat diseases and cosmetic agents for the purpose of beautification.[33] But today's delineation of cosmetics from pharmaceuticals has become more complex through the development of cosmetics with physiologically active ingredients, i.e. Cosmeceuticals. Shampooing is by far the most frequent form of cosmetic hair treatment. While shampoos have primarily been products aimed at cleaning the hair and scalp, current formulations are adapted to the variations associated with hair quality, hair care habit, and specific problems such as treatment of oily hairs,[34] dandruff[35] and for androgenic alopecia[35] related to the superficial condition of the scalp.

Cosmetics for the treatment of hair are applied topically to the scalp and hair. While they can never be used for therapeutic purposes, they must be harmless to the skin and scalp, to the hair, and to the mucous membranes and should not have any toxic effect, general or local, in normal conditions of their use. Mausner[37] has patented a shampoo composition, which cleans the hair and scalp without doing any damage to the fragile biological equilibrium of the scalp and hair. A hair-care cosmetic compositions comprising iodopropynyl butylcarbamate and/or a solution of zinc pyrithione in N -acyl ethylenediamine triacetate has been patented, which includes an appropriate carrier and a nonallergenic dry extract of yarrow (Achillea millefolium L.), obtained by oxidation of a water-alcohol solution extract of flower tops of yarrow. The extract contains less than 0.5% by weight of polyphenolic derivatives, is used for the treatment of hair, in particular oily hair, based on extract of yarrow.[34] Buck[36] has patented a method for treatment for androgenic alopecia wherein Liquor Carbonic Detergents are topically administered. It is generally accepted

that genetic hair loss arises from the activation of an inherited predisposition to circulating androgenic hormone.

A hair cosmeceutical product includes - conditioning agents, special care ingredients, and hair growth stimulants. Conditioning agents are intended to impart softness and gloss, to reduce flyaway and to enhance disentangling facility. A number of ingredients may be used, mostly fatty ingredients, hydrolyzed proteins, quaternized cationic derivatives, cationic polymers, and silicons[32]. Special care ingredients are aimed at modifying specific problems relating to the superficial scalp. These shampoos are formulated around one or more specific ingredients selected for their clinical effectiveness in these conditions. Accordingly, current antidandruff ingredients are virtually all-effective antifungal agents - zinc pyrithione, octopirox, and ketoconazole[38].

Hair growth stimulants cannot be expected to have any impact on hair growth due to short-contact time and water dilution. A minoxidil-related compound (2,4-diamino-pyrimidine-3-oxide) is a cosmetic agent with claim of acting as a topical hair growth stimulant[39]. Its target of action has been proposed to be the prevention of inflammation and perifollicular fibrosis.[40] Some degree of efficacy of 2, 4-diamino-pyrimidine-3-oxide has been claimed in the prevention of seasonal alopecia.[41] Recent approval in the United States of two new products, Propecia and Rogaine Extra Strength (Minoxidil) 5%, indicated in men to promote scalp hair growth, have added a new dimension to treatment options offered by physicians in treating androgenetic alopecia[42].

Other Cosmeceuticals[43]

The skin beneath the eye lacks subcutaneous fat and has virtually no oil glands. This delicate skin needs protection and plenty of moisture to replenish and repair, which helps to reduce the signs of premature aging. As the skin ages, it becomes thinner, drier, and rougher. Over-exposure to the elements and to environmental pollution aggravates this condition. Many topical skin-soothing products intervene in this process, but products for this area need to be particularly gentle and specially formulated with ingredients that work from the inside out by interacting with the cells under the skin's surface - without irritating the eyes. There are numerous cosmeceutical eye creams that nourish the skin with natural emollients and beneficial nutrients. The other functional ingredients include butcher's broom, chamomile, and vitamin E, antioxidants - vitamins A, C and E, green tea and tiare flower, Ginkgo biloba and also cucumber, calendula and a-bisabolol, an active constituent of chamomile, to calm irritated skin. A key ingredient in the eye lifting moisture cream - that treats puffiness, irritation, and also protects against future skin damage is yeast which helps to plump up the wrinkles. The eye wrinkle cream helps forestall the signs of aging and generally contains wheat germ and corn oil, squalene and carrot extract. Eye firming fluid has aosain, an algae extract from seaweed that helps the skin to maintain elasticity.

Lawlor had developed dental care compositions, which are useful for providing a substantive composition on the surfaces of oral cavity, which can provide prophylactic, therapeutic, and cosmetic benefit[43].

Regulatory Aspects[44]

The claims made about drugs are subject to high scrutiny by the Food and Drug Administration (FDA) review and approval process, but cosmetics are not subject to mandatory FDA review. Much confusion exists regarding the status of 'Cosmeceuticals.' Although there is no legal class called Cosmeceuticals, this term has found application and recognition to designate the products at the borderline between cosmetics and pharmaceuticals[44]. Cosmeceuticals are not subject to FDA review and the Federal Food, Drug and Cosmetic Act do not recognize the term itself. It is also often difficult for consumers to determine whether 'claims' about the actions or efficacies of Cosmeceuticals are in fact valid unless the product has been approved by the FDA or equivalent agency. Some experts are calling for increased regulation of Cosmeceuticals that would require only proof of safety, which is not mandatory for cosmetics. Some countries have the classes of products that fall between the two categories of cosmetics and drugs: for example, Japan has 'Quasi-drugs'; Thailand has 'controlled cosmetics' and Hong Kong has 'cosmetic-type drugs'[44].The regulations of Cosmeceuticals have not been harmonized between the USA, European, Asian and other countries.

Future prospects

By the addition of small amount of Cosmeceuticals agents to the cosmetic formulations which do not require medical regulations and it would improve the production of Cosmeceuticals that could help to improve the skin, nail, and body mass growth. New challenges will also be presented to government regulatory agencies as more

chemicals with true biological activity are invented and tested. In conclusion,Cosmeceuticals are not only the external beautification but also it improves the internal beauty through the health related function.

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