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DEVELOPMENT OF COSMECEUTICALS

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ABSTRACT:-

Cosmeceuticals means combination of cosmetics and pharmaceuticals. Cosmeceuticals are cosmetic products with biologically active ingredients purporting to have medical or drug-like benefits. Cosmeceuticals are used to improve and nourish the skin appearance and known to treat different dermatologic conditions. Like cosmetics, cosmeceuticals are also applied topically having ingredients that influence the skin's biological function. Cosmeceuticals are meant to improve appearance by delivering nutrients necessary for healthy skin. Cosmeceuticals usually claim to reduce wrinkles and to improve tone, texture and radiance of the skin. Cosmeceuticals products of herbal origin are most liked among clients as they are mostly nontoxic and holding strong antioxidant activity. Cosmeceutical product can be a drug, a cosmetic, or a combination of both. But the term "cosmeceuticals" has no meaning under the law". Cosmeceuticals are not subject to be reviewed by the Food and Drug Administration (FDA) and the term cosmeceuticals is not recognized by the Federal Food Drug and Cosmetic Act. Although cosmetics and cosmeceuticals both are being tested for their safety and tested to determine whether beneficial ingredients actually live up to a manufacturer's claims is not compulsory. The "cosmeceuticals" label applies only to products applied topically, such as creams, lotions and ointments. Cosmetic labels do not have any division between active ingredients and other ingredients that are essential, they are all listed together.

INTRODUCTION:-

The importance of beautification to the mankind has been known since the pre historic time and the desire to look beautiful and healthy has been developing in the society. In recent times fitness, good health, looks, way of presenting oneself are being counted as one of qualities of personality, now a day people are also being judged on these factors. Hence today there is a necessity and desirable requirement to give more attention to the looks and beautification for social acceptance as well as professional success, which is also overemphasized by the media. On the other hand life span of an average individual has being increased and factors such as sedentary lifestyle and dietary excesses associated with genetic determination, pregnancy and the aging process, contribute to alterations of the face and body that result in the loss of the individual's self-image.¹Cosmetics are substances used to increase the appearance or odor of the human body. Cosmetics consist of skin-care creams, lotions, powders, perfumes, lipsticks, fingernail and toe nail polish, eye and facial makeup. Towelettes, permanent waves, colored contact lenses, hair colors, hair sprays and gels, deodorants, hand sanitizer, baby products, bath oils, bubble baths, bath salts, butters and many other types of products. A subset of cosmetics is called "make-up" which refers mainly to colored products intended to change the user's appearance.²Cosmeceuticals refers to the mixture of cosmetics and pharmaceuticals. The term cosmeceuticals refer to the substances that exerted both cosmetic and therapeutic benefits. Cosmeceuticals are cosmetic products with biologically active ingredients purporting to have medical or drug-like benefits.³A cosmeceuticals is an ingredient with medicinal properties that manifests beneficial topical actions and provides protection against degenerative skin conditions. It encompasses cosmetic actives with therapeutic, disease-fighting, or healing properties, there by serving as a bridge between personal care products and pharmaceuticals.⁴Day by day various innovative terms for cosmeceuticals are being introduced viz.

- Beauty supplements
- Active cosmetics
- Bio-active cosmetics
- Performance cosmetics
- Phytocosmetics
- Functional cosmetics
- Dermaceuticals
- Skinceuticals
- Cosmetic drugs
- Therapeutic cosmetics.⁵

Like cosmetics, cosmeceuticals are applied topically; they contain ingredients that influence the skin's biological function. Cosmeceuticals are meant to improve appearance by delivering nutrients necessary for healthy skin. Cosmeceuticals usually claim to reduce wrinkles and to improve tone, texture and radiance of the skin. Cosmeceuticals is the fastest-growing segment of the natural personal care industry.⁶

Table .1:Cosmaceuticals as a subclass of cosmetics (Europe &Japan)and as a sub class of drug(US.)⁷

S.N.	Activity	Cosmetic	Cosmaceuticals	Drug
1.	Pharmacological activity	+	+	+
2.	Intended effect on skin disease	-	(+)	+
3.	Intended effect on mild skin disorder	-	+	(+)
4.	Side effect	-	+	-

KEY WORD'S:- Introduction,Cosmetics in ancient word,cosmetic in modern era,Classification of cosmeceuticals. Major class of cosmeceuticals.

COSMETICS IN THE ANCIENT WORLD:-

10,000 BCE:

Cosmetics are an integral part of Egyptian hygiene and health. Men and women in Egypt use scented oils and ointments to clean and soften their skin and mask body odor. Oils and creams are used for protection against the hot Egyptian sun and dry winds. Myrrh, thyme, marjoram, chamomile, lavender, lily, peppermint, rosemary, cedar, rose, aloe, olive oil, sesame oil, and almond oil provide the basic ingredients of most perfumes Egyptians use in religious rituals.

4000 BCE:

Egyptian women apply galena mesdemet (made of copper and lead ore) and malachite (bright green paste of copper minerals) to their faces for color and definition. They use kohl (a combination of burnt almonds, oxidized copper, different colored coppers ores, lead, ash, and ochre)

to adorn the eyes in an almond shape. Women carry cosmetics to parties in makeup boxes and keep them under their chairs.

3000 BCE:

The Chinese stain their fingernails with gum arabic, gelatin, beeswax, and egg. The colors are used as a representation of social class: Chou dynasty royals wear gold and silver, with subsequent royals wearing black or red. Lower classes are forbidden to wear bright colors on their nails. Grecian women paint their faces with white lead and apply crushed mulberries as rouge. The application of fake eyebrows, often made of oxen hair, is also fashionable.

1500 BCE:

Chinese and Japanese citizens commonly use rice powder to make their faces white. Eyebrows are shaved off, teeth are painted gold or black, and henna dyes are applied to stain hair and faces.

1000 BCE:

Grecians whiten their complexion with chalk or lead face powder and fashion crude lipstick out of ochre clays laced with red iron.

COSMETICS IN COMMON ERA(CE):-

100:

In Rome, people put barley flour and butter on their pimples and sheep fat and blood on their fingernails for polish. In addition, mud baths come into vogue, and some Roman men dye their hair blonde.

300-400:

Henna is used in India both as a hair dye and in mehndi, an art form in which complex designs are painted on the hands and feet using a paste

made from the henna plant, especially before a Hindu wedding. Henna is also used in some North African cultures.

COSMETIC IN MIDDLE AGE:-

1200:

Perfumes are first imported to Europe from the Middle East as a result of the Crusades.

1300:

In Elizabethan England, dyed red hair comes into fashion. Society women wear egg whites over their faces to create the appearance of a paler complexion. Some people believe, however, that cosmetics blocked proper circulation and therefore pose a health threat.

RENAISSANCE COSMETICS:-

1400-1500:

Italy and France emerge as the main centers of cosmetics manufacturing in Europe, and only the aristocracy has access. Arsenic is sometimes used in face powder instead of lead. The modern notion of complex scent-making evolves in France. Early fragrances are amalgams of naturally occurring ingredients. Later, chemical processes for combining and testing scents surpass their arduous and labor-intensive predecessors.

1500-1600:

European women often attempt to lighten their skin using a variety of products, including white lead paint. Queen Elizabeth I of England is one well-known user of white lead, with which she creates a look known as “the Mask of Youth.” Blonde hair rises in popularity as it is

considered angelic. Mixtures of black sulfur, alum, and honey are painted onto the hair and lighten with sun exposure.

19th AND EARLY 20th CENTURY GLOBAL COSMETICS

DEVELOPMENTS:-

1800:

Zinc oxide becomes widely used as a facial powder, replacing the previously used deadly mixtures of lead and copper. One such mixture, Ceruse, which is made from white lead, is later discovered to be toxic and blamed for health problems including facial tremors, muscle paralysis, and even death.

Queen Victoria publicly declares makeup improper. It is viewed as vulgar and acceptable only for use by actors.

1900:

In Edwardian Society, pressure increases on middle-aged women to appear youthful while acting as hostesses. As a result, cosmetics use increases, but is not yet completely popularized. Beauty salons rise in popularity, though -patronage of such salons is not widely accepted. Because many women do not wish to publicly admit they have assistance achieving their youthful appearances, they often enter salons through the back door.⁸

CLASSIFICATION OF COSMECEUTICALS⁹

1. skin care
2. Hair care
3. Colour
4. Fragrance
5. Toiletries
6. Other.

1.SKIN CARE COSMECEUTICALS:-

Cosmetics and skin care products have become the part of everyday grooming of the people. It is essential to protect and preserve the skin for good health. Our skin, which is the largest organ of the body acts by separating and protecting the internal environment from the external one. UV radiations coming from the sunlight penetrate the skin and accelerated damage due to free radicals, which consist of wrinkling, inflammation and hyper pigmentation. The collagen and elastin fibres of the skin due to prolonged exposure to UV radiation are broken down by enzymes collagenase and elastase and thus the texture of skin deteriorates. Collagen and elastin are responsible for maintaining the elasticity and integrity of the skin. Numerous plant extracts and antioxidants that are obtained from natural sources are able to prevent the aging and also improving the appearance of the skin.¹⁰The most important botanicals pertaining to dermatologic uses, such as cosmeceuticals, include teas, soy, pomegranate, date, grape seed, Pycnogenol, horse chestnut, German chamomile, curcumin, comfrey, allantoin, and aloe; of all these only green and black tea, soy, pomegranate, and date have been studied to the extent that clinical trials for the treatment of parameters of extrinsic aging have been published.¹¹The following ingredients are most commonly used in cosmeceuticals. :-

S.no.	Name of active constituents used in cosmeceuticals.
1.	Boswellic Acid.
2.	Tetra-hydrocuraminoid.
3.	Hydroxy acids ¹²
4.	Vitamins ¹³ Vitamins play a vital role in cosmeceuticals name of some vitamins are as follows:- Vitamin A, Vitamin B ³ and B ⁵ , Vitamin C, Vitamin P...
5.	Panthanol (alcoholic analog of vit. B ⁵)
6.	¹⁴ Green tea extract, Ferulic acid, Grape seed extract

Antioxidants:-

Along with the external insults like UV radiation, drugs, air pollutants and heat and/or cold, the skin also has to cope with endogenous mitogens, most importantly reactive oxygen species (ROS) and other free radicals. These species are constantly generated during physiological cellular metabolism. To respond to the harmful effects of ROS, the skin is armed with an antioxidant system to maintain equilibrium between the pro-oxidants, or damaging agents and the antioxidants, or protective agents; these antioxidants mediate at different levels in the protective process. Here some of the antioxidants are listed below, :-

- **Lipoic Acid**
- **Dimethyl amino ethanol¹⁵**
- **Melatonin** :-Hormone secreted from pineal gland have anti oxident activity

- **Catalase**:-An enzyme that catalyse hydrogen peroxide in to water and oxygen
- **Glutathione**
- **Superoxidedismutase**¹⁶

MAJOR CLASSES OF COSMACEUTICALS:-

Major Classes of Cosmeceuticals are as follows

- **Sunscreens**

These are considered as OTC drugs: sun protection factor must be proven by in-vitro and in vivo studies. These are regarded by dermatologists as the single most important formulation that should be applied daily. These are the products formulated to meet individual preferences, such as scent and feel can improve compliance.

- **Retinoids**:-

These are the natural and synthetic derivatives of vitamin D. **Drugs**: retinoic acid (tretinoin). Adapalene and tazarotene. Substantial scientific data confirm their anti-aging and anti-acne benefits. Retinoic acid is considered by dermatologists to be the anti-aging gold standard. These are available only through a doctor's prescription.

Cosmeceuticals: retinol, retinaldehyde, retinylpropionate, retinylpalmitate. In many cases, bioavailability and activity are unproven when formulated.

- **Moisturizer:-**

Moisturizer includes emollients, occlusive's, and humectants. They are considered to be the most useful product for the management of various skin conditions (e.g. atopic dermatitis, psoriasis, pruritus, aging skin)

- **Lightening Agents:-**

At best, depigmenting agents can achieve modest levels of efficacy. Hydroquinone is considered to be the most effective. They are presently under re-evaluation by the US FDA. Sunscreen use is required due to drug-induced photosensitivity, other examples include kojic acid, glabridin (licorice extract), arbutin, azelaic acid, n-acetyl glucosamine and vitamin C.

- **Hydroxy' Acids (alpha. beta, poly):-**

These include glycolic acid, tartaric acid, citric acid, malic acid, pyruvic acid and lactic acid. They can improve depigmentation and skin texture. They can induce actual structural changes in skin, so the potential exists for regulatory scrutiny.

- **Antioxidants**

These Include vitamins A, C and E: alpha lipoic acid: Ubiquinone (coenzyme Q-10): idebenone: polyphenols (e.g. catechins, flavonoids): kinetin: botanicals (e.g. teas, grapeseed, grape skins and stems, coffeeberry). They enhance the skin's natural antioxidant protection system with topical application. They reduce free-radical damage by blocking the oxidative processes in cells. Antioxidants inhibit inflammation that causes collagen depletion. They protect against photo damage and skin cancer. They do reverse signs of photo aging.

- **Proteins/ Peptides:-**

They can trigger skin repair as needed. There are some indications that they can reduce the signs of aging and accelerate the skin's healing processes.

- **Other vitamins and Minérales**

Recently, the market is swamped with too many cosmeceuticals products like anti wrinkle creams, medicated lotions, hair growth stimulants, antidandruff shampoos, eye wrinkle creams, collagen injections, etc.¹⁷

HAIR CARE COSMECEUTICALS:-

The appearance of hair is a feature of the body over which humans, unlike other land mammals, has direct control. The length, color and the style of the hair can be modified according one's wish to appear. Styling of hair along with its color plays a vital role in the appearance of people. In ancient times the setting and coloring of hair was done with the help of mud and henna resp. various tonics and ointment for beautification of hair and for curing scalp disease were used in ancient Greece and Rome. Henry deMandeville first made the distinction between the medical therapies intended for treatment of disease and cosmetic agent for beautification.¹⁸ But today's delineation of cosmetics from pharmaceuticals has become more complex through the development of cosmetics with physiologically active ingredients, i.e. cosmeceuticals. By far the most frequent form of cosmetic hair treatment is shampooing. While shampoos have primarily been products aimed at cleaning the hair and scalp, recent formulations are modified to the variations associated with hair quality, hair care habit, and specific problems such as treatment of oily hairs¹⁹.dandruff. and for androgenic alopecia. related to the superficial condition of the

scalp.²⁰Shampooing is the most frequent form of hair treatment. Current shampoo formulations contain ingredients that can treat specific problems. Extract of yarrow (*Azillea millefolium* L), has been used to treat oily hair.

A hair cosmeceuticals product includes conditioning agents, special care ingredients and hair growth stimulants.

COLOUR COSMECEUTICALS:-

Colour is a key property of a product to determine the attractiveness for consumers and, therefore, its successful marketing. Colouring agents can be added to cosmetics in order to colour the product itself or to colour a part of the body (skin, hair, nails or eyelashes). In this latter case, the so-called colour cosmetic is a sector with a strong growth in the industry of cosmetics, given the increasing concern with body image motivated by the popularity of social media ²¹. According to their use, cosmetics can be classified as leave-on, those that are in prolonged contact with the skin such as lipstick, cream or body lotion, and rinse-off, those that are removed after application such as shampoo, gel or soap. Colorants can be classified according to their structure, source, colour, solubility and application method ²². Two main categories are established according to solubility: dyes and pigments. Dyes are synthetic organic compounds that are hydro or oil-soluble and they can be found in cosmetics such as skin care products or toiletries whereas pigments are insoluble, they remain in particulate form, and they are mainly employed in toothpastes or decorative make-up ²³. Among the thousands of substances employed as colouring agents, synthetic dyes are preferred over natural (obtained from plants, animals and minerals) given their lower production costs and long-lasting

properties such as brightness or greater stability towards light, heat or pH extreme that may occur during the manufacturing process.

CURRENT COSMECEUTICALS COMPOUNDS AVAILABLE:-

Bo-Peptide Eye Cream–

An HCG diet friendly mixture of various peptides and glycosaminoglycans along with the Lipo Light light reflecting technology.

Anti-Aging Eye Cream–

Powerful mixture of the anti-oxidants melatonin and Idebenone in Glycine Soya Protein solution, designed to restore youthful texture to skin.

Bacopeptide Anti-Aging–

HCG diet friendly formulation of Bacopa Monnieri extract, acetyl dipeptide and gluconol-actone in vanishing cream.

Collagen Booster Lotion–

HCG diet friendly formula to improve and restore skin matrix contains Palmitoylpentapeptide, glycine soya protein, kinetin and glycosaminoglycans.

Eye Wrinkle Gel–

HCG diet friendly formula designed to provide maximum moisture to support skin matrix contains Sodium Hyaluronate, DMAE, Acetyl D Glucosamine and glycine soya protein. Ask pharmacists to help you decide which formulas are best for your skin care needs.

CONCLUSION:-

In 2006, the cosmeceutical market rose to nearly \$8.2 billion in profits in the USA alone. The development, use, and marketing of these products will continue to rise as the aging population strives to find noninvasive alternatives to anti-aging regimens. Well designed, randomized, placebo-controlled trials and basic science research is lacking. Industry is leading the research behind much of the science we now know to influence the development of cosmeceuticals. As the market grows, so should our understanding of the products, as it is our patients who use these products leaders of the field of dermatology, we need to understand the science of cosmeceuticals in order to provide our patients with optimal education and skin care guidance.

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