



Original Article

Cosmeceuticals: The Bridge between Cosmetics and Pharmaceuticals

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Abstract

Cosmeceuticals are a new class of products that fall between medications and cosmetics and are meant to improve the appearance and health of the skin. Cosmeceuticals, which make up a growing portion of the skin care market, are made from a variety of components, the primary types of which are covered in this article. Given the increasing patient interest in these treatments and the compelling promises made by manufacturers, it is critical that doctors are aware of these medicines and understand their advantages, disadvantages, and potential side effects. Cosmeceuticals are cosmetic-pharmaceutical combination solutions designed to improve the health and appearance of the skin, hair, and other problems by offering a certain outcome. These effects can include sun protection, dandruff control, acne control, anti-wrinkle effects, hair growth, and conditioning. Cosmetics have therapeutic applications. Depending on the type of functional chemicals they contain, it has an impact on how the skin functions biologically. The topical agents that fall between pure cosmetics and pure drugs are known as cosmetics. They are used in a wide range of applications. Several naturally occurring herbs are used in skincare, hair care, and antioxidant cosmetic preparations. The significance of cosmeceuticals and herbs and their benefits, drawbacks, and difficulties are the main topics of this article.

Keywords: Cosmeceutical, Pharmaceutical, Cosmetics, Skin care, Hair care, Herbal cosmetics, Anti-aging, Moisturizers, Antioxidants, Active ingredients

Introduction

The advent of cosmeceuticals in recent years has brought about radical changes in the skincare sector. These cutting-edge solutions offer sophisticated compositions that go beyond conventional skincare alternatives and combine the advantages of medications and cosmetics. Cosmetics provide therapeutic benefits to the skin by addressing particular issues, including acne, hyperpigmentation, and aging. Examining the main components and their benefits is crucial for understanding the science underlying cosmeceuticals. Ingredients, including retinol, hyaluronic acid, and vitamin C, have major positive effects on the skin. While hyaluronic acid offers high hydration [2], retinol aids in minimizing the appearance of fine lines and wrinkles [1]. Conversely, vitamin C enhances the formation of collagen and brightens the complexion [3]. Americans are getting older and wealthier than before. The skin care business has reacted forcefully to the spike in demand for high-end anti-aging products, as many consumers are willing to trade cash for youth. Cosmetics firms have embraced the biomedical revolution by incorporating physiologically active components into their products, which improve the function of healthy skin, going beyond traditional cosmetics, which simply momentarily embellish and beautify the skin. These items have escaped pharmaceutical oversight and scrutiny because they are not meant to treat or cure skin conditions. The distinction between a drug and a cosmetic, a physician and an aesthetician, and a patient and a consumer is therefore blurred by "cosmeceuticals." The "active ingredients" in cosmeceutical cosmetics are still the subject of much debate, especially when it comes to their composition, ideal concentration, penetration, and skin retention. Although some testing and clinical trials have been conducted to answer these questions, there is little evidence to support cosmeceutical claims.

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Although there has been limited translation of this evidence into in vivo testing to ascertain the possibility of delivering adequate doses to the skin that will produce clinical or histologic results, in vitro testing for certain products has demonstrated that these ingredients have a protective and repairing effect on aging skin.[4]

Cosmeceuticals Type [5]

The following categories apply to cosmeceuticals based on their function:

1. Cosmetics for skin whitening and/or depigmentation
2. Skincare products that moisturize
3. Anti-aging cosmetics
4. Cosmetics for sunscreen
5. Photoaging prevention cosmetics

Based on a variety of currently available items

1. Antioxidants
2. Elements of growth
3. Peptides
4. Metals
5. Botanical and anti-inflammatory drugs,
6. Polysaccharides
7. Agents that brighten pigments.

Traditional Knowledge of Cosmetics and Cosmeceuticals

Herbal cosmeceuticals have been traditionally used since the ancient Ayurvedic system began to employ plant-based medicines. In fact, the use of herbal cosmeceuticals is explained in traditional Indian literature under the heading of "solah shringar," which translates to "16 concepts of beautification from head to toe" and refers to the external application of one or a combination of herbs for cosmetic purposes. [9] Numerous herbs were well-known for their ability to treat skin and hair issues, including *Rubia cordifolia* Linn (Indian madder), *Acacia concinna* (shikakai), *Callicarpa macrophylla*, *Curcuma amada* Roxb (Mango ginger), *Curcuma longa* (turmeric), and *Emblica officinalis* Gartn (amla). One such traditional remedy that was utilized around 4,000 years ago and was significant in Indian Vedic culture is *Curcuma longa*, popularly known as turmeric or "Indian saffron." [10] Turmeric has many different uses, such as anti-inflammatory, anti-oxidant, anti-carcinogenic, anti-mutagenic, anti-bacterial, anti-fungal, and many more. It has also been shown to shield the skin from chromosomal damage caused by gamma radiation, making it a treatment option for skin conditions, hair greying, and skin nourishment. Turmeric is a common ingredient in several formulas. [11]

Cosmeceuticals versus Pharmaceuticals

Cosmetics with active components that resemble pharmaceuticals, but at lower quantities, are known as cosmeceuticals. They enhance beauty by providing vital nutrients to preserve healthy skin and hair. [12] Contrarily, pharmaceuticals are goods that promise to improve abnormal or pathological conditions by containing an active substance at a certain concentration. [13] Cosmetics with

therapeutic qualities are known as cosmetics, although they are not considered as medications that may treat or cure illnesses. [14] The European Commission defines cosmetics as any product intended for external application, such as on the skin, hair, nails, lips, external sexual organs, or mouth. They are only used to clean, perfume, or alter their look, as well as to add scents and keep them in good shape. [15] Regulatory agencies of the government oversee pharmaceuticals in accordance with strict guidelines, such as the Food and Drug Administration, Central Drug Standard Control Organization (CDSCO) in India, Germany's Federal Institute for Drugs and Medical Devices, and the United States Federal Drug Administration (FDA) [16].

Skin cosmetics

Skin care products and cosmetics are part of daily grooming. For optimal health, skin must be preserved and protected. The largest organ in the body, the skin, protects and divides the internal and external environments. DNA, collagen, and cell membranes, the building blocks of the skin, are cumulatively harmed by environmental factors, air pollution, sun radiation exposure, and the natural aging process. The purpose of cosmetics and beauty products is merely to conceal and beautify; they do not alter or heal the skin. Because of the types of useful substances they contain, cosmetics—beauty products with therapeutic or drug-like effects—can alter the biological functions of the skin. By promoting collagen formation and thwarting the damaging effects of free radicals, these products enhance the texture and functionality of the skin, preserve the integrity of keratin structure, and promote overall skin health. [6] Moisturizers work to tone, brighten, and smooth wrinkles on sensitive skin. Typically, moisturizers contain humectants to aid in the absorption and retention of moisture by skin cells and emollients to smooth the skin's surface by penetrating the non-living outer layers of the skin and filling the gaps between them. Healthful Solutions For menopausal the balancing loop was developed with components that improve the neck region, moisturize dry and sagging skin, and reduce the appearance of fine lines and wrinkles. Black cohosh, soy extract, and vitamins A and E are among these components. A revitalizing compound with green tea leaf extract and a nourishing complex with hyaluronic acid complement the skin's natural moisture balance. [7]

Hair cosmetics

Humans, in contrast to other terrestrial mammals, have direct control over the appearance of their hair. Depending on how one wants to look, one can change the length, color, and style of the hair. People's perceptions of themselves and their physical appearance are greatly influenced by hair color, style, and maintenance. Henna coloring and mud-based hair setting were two of the first hair cosmetic techniques to be used in ancient Egypt. Numerous ointments and tonics have been suggested for hair beauty and the treatment of scalp ailments in ancient Greece and Rome. Henry de Mondeville was the first person to distinguish between pharmaceutical treatments meant to cure illnesses and cosmetic compounds [17]. However, the

development of cosmetics with physiologically active chemicals or cosmeceuticals has made it more difficult to distinguish cosmetics from medications. Shampooing is the most common type of cosmetic hair treatment. Although shampoos have traditionally been used to clean the hair and scalp, modern formulations are tailored to differences in hair quality, hair care habits, and particular issues such as treating oily hairs, dandruff, and androgenic alopecia, which are related to the superficial condition of the scalp [18,19,20].

Other cosmetics

There were hardly any oil glands and no subcutaneous fat in the skin beneath the eye. To restore and heal this sensitive skin and lessen the symptoms of premature aging, protection and an abundance of moisture are required. With age, the skin becomes thinner, drier, and harsher. This illness is exacerbated by excessive exposure to the weather and environmental contaminants. Numerous topical skin-soothing treatments interfere with this process, but those intended for this area must be extra milder and specially made with components that interact with the cells beneath the skin's surface to operate from the inside without irritating the eyes. Several cosmeceutical eye creams nourish the skin with natural emollients and beneficial elements. Butcher's broom, chamomile, vitamin E, antioxidants (vitamins A, C, and E), green tea, tiare flower, Ginkgo biloba, cucumber, calendula, and α -bisabolol, an active component of chamomile that soothes irritated skin, are among other useful constituents. Yeast is a crucial component of eye-lifting moisture cream, which helps to fill out wrinkles and relieve puffiness and irritation while shielding the skin from further harm. Eye wrinkle cream typically contains carrot extract, squalene, wheat germ, and corn oil to help prevent aging. Aosain, an algal extract from seaweed, is an ingredient in the eye-firming fluid that maintains the skin supple [21].

Future prospective

This would enhance the development of cosmeceuticals that could aid in the improvement of skin, nail, and body mass growth by adding a small number of cosmetic agents to cosmetic formulations that are exempt from medical laws. As additional compounds with real biological actions have been developed and studied, new problems will also be put to government regulatory bodies. In summary, cosmetics serve a dual purpose of improving internal beauty and exterior attractiveness through their health-related properties. Experts in the health group will highlight the value of cosmeceutical goods and raise consumer knowledge of them [22].

Aspects of regulation

The Food and Drug Administration (FDA) reviews and approves statements made regarding medications with great care, but does not require cosmetics to undergo FDA review. There is a lot of misunderstanding about the status of "cosmeceuticals." Despite the lack of a recognized legal class, the word "cosmeceuticals" has been used to refer to products that fall somewhere between

pharmaceuticals and cosmetics.[8] The Federal Food, Drug, and Cosmetic Act does not recognize the term " or cosmeceuticals," and the FDA does not review them. Additionally, unless the product has been approved by the FDA or an analogous organization, customers frequently find it impossible to verify whether "claims" regarding the activities or efficacies of cosmeceuticals are true. 1. Kligman, A. M., Grove, G. L., and Hirose, R. (1986). Topical tretinoin for photoaged skin.

Conclusion

Cosmeceuticals are special combinations of medications and cosmetics. They enhance the appearance of the skin and support health. Because they are both aesthetically pleasing and attractive in portraiture, perhaps because of their varied formulations and shapes, these products are becoming increasingly popular as people's concerns about maintaining their complexion and attractiveness grow. A vast range of substances, including vitamins, peptides, hydroxyl acids, and ceramides, are used in cosmetics to treat a variety of problems, such as aging, hyperpigmentation, and even pollution-induced skin damage. As the beauty industry as a whole change as a result of this paradigm shift, these businesses can broaden both their product offerings and vision. However, because biochemical and dermatological research must be applied constantly, this is a highly competitive field, and remaining ahead of the competition requires being a pioneer in both product composition and brand marketing. It also entails being as ecologically conscious and damage-controlling as feasible and using a variety of sustainable business practices. Consequently, As a result, the industry's primary focus has shifted from beauty to safety, and clients' particular attention has been focused on sustainability. Although these products have many benefits, they must be handled carefully. Ultimately, beauty in the modern world is probably defined by cosmetics, medications, and cosmetics. These devices will soon help to address the most pressing issues facing today's society.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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