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Natural and organic cosmetics: Beneficial properties for the environment and health

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***Keywords*— Green consumers, Natural Cosmetics, Organic Cosmetics, Sustainability, Sustainable Packaging.**

***Abstract*—** *Currently, the use of natural and organic cosmetics in the personal care, perfumery and cosmetics market is increasing. This is related to the current environmental scenery, in which consumers are becoming aware of the importance of using products that do not cause damage to the environment and health. The present work aimed to address natural and organic cosmetics, reporting the main characteristics of these products and some of the main components used. A bibliographic survey was carried out in databases, seeking scientific articles preferably updated, using the following descriptors: green consumers, natural cosmetics, organic cosmetics, sustainable packaging and sustainability. The results obtained showed that there is a great tendency of consumers to prefer natural and organic cosmetics, which has been caused by concern for their health and the environment, in addition to the influence of the media, influence of the media and entities that raise awareness about environmental, social and ecological issues. The components most commonly used in such cosmetics are of plant origin, can be used in different formulations for different purposes, in addition to presenting several health benefits and lower environmental impact. The present research can contribute to the awareness and greater knowledge about natural and organic cosmetics, so that this reflects in an increase in the demand for sustainable products by consumers themselves.*

I. INTRODUCTION

Cosmetic, personal care and perfume products are formulations made up of natural or synthetic substances, for external use in different parts of the human body, with the aim of cleaning, perfuming or improving appearance (Brasil, 2015). The cosmetics sector is constantly growing due to people's desire to preserve youth and beauty. In Brazil, the beauty market, which grows year after year, grew by 5.7% in the first quarter of 2021, according to ABIHPEC – Brazilian Association of the Personal Hygiene, Perfumery and Cosmetics Industry. As a result, the country ranks 4th in the world ranking of the largest consumers of beauty in the world, according to Euromonitor (Abihpec, 2021).

With the growth of the consumer market and, consequently, the impact of the environmental crisis, there is a tendency for consumers to prefer cosmetics that do not harm the environment and their own health, prioritizing

products whose development is sustainable: natural cosmetics and organic cosmetics. , also called biocosmetics. These products are formulated with natural ingredients in different percentages and do not contain chemical additives in the composition (Lyrio et al., 2011). Interest in sustainable products has increased over the years, since the choice of products, packaging and production processes have a great impact on the environment. These products are classified by regulatory insituitions in different categories, adding advantages to the product and increasing consumer demand (Santos et al., 2015).

In addition, the consumer market for ecological cosmetic products has been driven by the influence of the media and entities that make consumers aware of environmental, social and ecological issues. In this context, "green consumers" have pressured the cosmetic industry to become more sustainable, as well as making companies reflect on the importance of not only economic, but also environmental and social interests (Bom et al., 2019). When buying green products, often at a higher price, in the face of existing alternatives, consumers not only contribute to the state of the environment, but demonstrate the belief that their actions can be effective in combating environmental degradation (Nascimento et al., 2017).

Brazil is a country with enormous potential for the development of varied biocosmetic products, due to the great diversity present in our territory, through the large ecosystem (Lima et al., 2021). With the increase in the consumption of these types of cosmetics, regulatory agencies and accredited certification bodies classify these products as natural or organic based on references developed by the private certification institutions themselves, endorsed by public instituitions, in order to provide control over the facts alleged by the companies that develop this type of product (Romero et al., 2018). There is no harmonization in the guidelines of instituitions of certification and each cosmetic industry formulates its product and packaging in a more rational way, which causes less damage to the environment (Santos et al., 2015).

In view of this context, the objective of the present work was to approach natural and organic cosmetics, reporting the main characteristics of these products and the main components used.

II. METODOLOGY

The study is a narrative review, which presents the following steps, according to Sousa et al., (2018): identification of the theme; literature search; font selection; reading and analysis of the literature; review presentation.

For the elaboration of this study, a bibliographic research was used regarding the theme addressed, in scientific articles indexed in the Scielo, PubMed and Google Scholar databases, in addition to books and public documents. Scientific articles published from 2011 to 2022 were researched, using as keywords: green consumers, natural cosmetics, organic cosmetics, sustainable packaging and sustainability. Descriptors were entered into the search field alone or in combination using the Boolean operators AND and OR.

Articles were mainly included, available electronically in full, that reported characteristics of organic and natural cosmetics and the main components used in these products. Abstracts published in congress proceedings and duplicate articles were excluded from the results. Considering the objectives of the study, the articles identified were selected according to the inclusion and exclusion criteria. After the exploratory reading of the material obtained, the information regarding the proposal of this study was selected, with the subsequent analysis and writing of the present work.

III. RESULTS E DISCUSSION

The cosmetics industry, which encompasses the personal care, perfumery and cosmetics sectors, has undergone an important transformation with the development of ecologically correct production and the trade of inputs from biodiversity (Romero et al., 2018). For the industrial process to be considered sustainable, there is a need to evaluate all phases of the life cycle of the cosmetic product, according to environmental, social and economic aspects (Furman et al., 2022). Cosmetics produced within an environmental context led to a greater concern with the use and conscious manufacture using our natural resources (Lima et al., 2021).

A care routine full of toxins from the chemical components present in cosmetics can have negative effects on the consumer, in addition to generating environmental damage with sea pollution, affecting marine animals and even human beings, who consume fish and meat. crustaceans (Furtado & Sampaio, 2020). A study carried out by Rocha et al., (2018), identified compounds such as parabens, triclosan, and benzophenones in the urine of the sampled children, being substances found in cosmetics. A study by Schwabl (2018) shows concern about microplastics coming from the deterioration of packaging and exfoliating cosmetics that are polluting oceans, reporting the importance of surveillance with gastrointestinal diseases, since in all samples collected in

the study there were microplastics. In addition, another major concern is the disposal of packaging that, often not being biodegradable, generate an excess of non-recyclable solid waste that profoundly harms the environment (Santos Junior & Oliveira, 2019). In this way, beauty in a sustainable way has gained great prominence in recent years, due to the increase in consumer interest in products of natural, vegan and organic origin, from food to beauty. Consumers are increasingly looking for natural ingredients not tested on animals, free of preservatives and of organic origin, which puts pressure on cosmetic companies to update (Flor et al., 2019; Saretta & Brandão, 2021).

With this, natural and organic cosmetics appeared on the market, being a solution to overcome the problem of toxins present in the personal care routine, serving as a healthier alternative with less environmental impact. These biocosmetics are products made with plant ingredients, without artificial preservatives or substances of animal origin, therefore, it is expected that they are more gentle to the skin and even more effective due to the natural ability to stimulate its recovery (Lyrio et al. , 2011). "Green consumers" are adept at consuming these cosmetics, as they seek products that do not use synthetic substances and/or animal derivatives, due to the fact that they are more sustainable and safer for humans (Peres et al., 2021).

Information about the harmfulness or ability of cosmetics to be harmful to human health has been increasing over the years, as has the concern with other sustainability biases (Rocha et al., 2018). Research carried out by Furtado and Sampaio (2020), shows that the main characteristics valued when purchasing a sustainable cosmetic are: quality, environment, price, health, presence of natural ingredients in the composition, packaging and animal testing. For the industrial process to be considered sustainable, the raw material selection phase is the most challenging, as the safety and function of each ingredient, the stability of the formulation, the shelf life of the product and the preference must be taken into account. consumer (Furman et al., 2022).

The raw materials that characterize cosmetics free from the presence of industrialized inputs can be organic or natural. The inputs characterized as natural come from minerals; plants and animals, however, according to the Ministry of Agriculture, Livestock and Supply, organic products come from an organic system of agricultural production through an extractive process in a sustainable way, in this way, they need to be certified by bodies accredited by the Ministry of Agriculture, Livestock and Supply (Peres et al., 2021). Brazil has the greatest plant biodiversity in the world, which favors the growing market for natural and organic cosmetics due to the availability of significant raw materials (Magalhães, 2018).

Among the raw materials with the greatest economic potential for the development of natural and organic cosmetic products, the different types and fractions of medicinal plants, plant extracts, natural dyes, fruits, vegetable oils, essential oils and resins stand out. Medicinal plants have active principles widely used in the preparation of herbal medicines, but they can also be applied in the cosmetic industry. Natural dyes are very interesting for the production of cosmetics, especially make-up, while fruits are more used in creams, shampoos and conditioners. Vegetable oils are widely used as base ingredients, emollients and moisturizers, due to their composition basically of triglycerides, which make them difficult to evaporate. Finally, essential oils comprise one of the main materials for the production of natural cosmetics, being used as fixatives, fragrances, scents and condiments (Miguel, 2012; Zucco et al., 2020).

Many cosmetic products have natural products in their formulation that fulfill a specific biological function, but these products must be evaluated for efficacy and toxicological aspects (Santos et al., 2015). Natural and organic ingredients can be used in different formulations, for different purposes, whether aesthetic or not. Some actives very commonly used in natural cosmetics are: Aloe vera, with moisturizing, healing, antimicrobial and anti-inflammatory properties; coconut oil used as a base for creams, sunscreen formulations and soaps; tea tree oil with healing, antiseptic, anti-irritant properties, used externally for acne and other skin diseases such as psoriasis and eczema; and rosehip oil that is moisturizing, antiseptic, healing, tissue regenerator, being widely used in the treatment of stretch marks and scars (Nakagami et al., 2020).

The raw material of plant origin is rich in several compounds that help and help in the aesthetics of the skin, one of the highlighted compounds are flavonoids, which are active with antioxidant action, being compounds found in abundance in fruits, superior vegetables and in foods. The use of flavonoids in cosmetic formulations provides skin protection against endogenous and exogenous harmful agents, and enables the prevention and treatment of skin disorders, in addition to preventing premature skin aging (Henrique & Lopes, 2017).

Some plants have great power of photoprotection, such as *Matricaria chamomilla*, which is rich in compounds that are anti-inflammatory and antinociceptive, are still natural protectors from ultraviolet-B radiation (Saretta & Brandão, 2021; Nobrega et al., 2013). A study carried out by Cavinato et al. (2017), gathered the most

relevant plant extracts and natural compounds that have an effect against UVB-induced photoaging. which, in a study, was shown to decrease the production of reactive intracellular oxygen species in cells after UVB irradiation. In addition to photoprotection, angelica root extract showed results in inducing collagen synthesis. Bergamot, orange, soy and ginseng extracts were also cited due to the photoprotective effect (Cavinato et al., 2017).

Despite the growth in the use of these cosmetics, there is still no official regulation, by law, that regulates them, and they are certified by regulatory agencies or accredited certification instituitions. This absence of a single certification can confuse consumers, in addition to allowing each certifying group to develop its own regulatory standard. However, despite the differences between the certifiers, all of them have parameters that differentiate traditional cosmetics from natural and organic ones (Romero et al., 2018).

The IBD – Biodynamic Institute of Certifications –, for example, is the largest certifier of organic and sustainable products in Latin America, being the only 100% Brazilian company with international recognition. According to the IBD, a cosmetic is considered organic when at least 95% of its components, except water, are made from organic raw materials with an extraction certificate or raw materials that follow strict production, extraction, purification and processing standards, obtained through certified crops. The last 5% of the formulation may be composed of natural raw materials coming from uncertified agriculture or extraction. On the other hand, natural cosmetics, according to the IBD, are those whose formulation is composed of natural raw materials, whether certified or not, that is, vegetable or mineral products often produced in a conventional condition and not always adhering to the criteria established by organic production (IBD, 2022).

For an input to be considered organic, it needs certification following ISO 65 standards. For this, it must be treated only with organic fertilizers, such as manure, and must not use antibiotics, growth hormones, pesticides or genetic modification. In addition, processes must be made with renewable energy and packaging must be made with biodegradable products (Tozzo et al., 2012). For the cosmetics industries to be classified as sustainable, they have to invest in natural inputs and refrain from substances derived from other products such as oil, among others (Furtado & Sampaio, 2020).

According to Ecocert, one of the largest certifiers of organic products in the world, on which the IBD is based, the substances allowed in biocosmetics are any unprocessed plant or mineral product, directly derived from agricultural expansion, that meets the quality criteria defined by the certifier. Among the prohibited substances are hydrocarbons, pesticides, radioactivity, drug residues, nitrates and nitrosamines, due to the fact that they generate pollution and, eventually, risk of toxicity to consumers (Ecocert, 2021).

The packaging of a “green product” is another point that must be taken into account. Ideally, it can be reused or recycled without generating a lot of waste (Santos et al., 2015). According to Peres et al. (2021), the packaging of natural cosmetics considered sustainable should also be evaluated, analyzing their life cycle, so that they do not become urban waste. Such packaging must follow the concepts of sustainability, which means that production practices must use biodegradable packaging, having the ability to decompose in a shorter period when compared to traditional packaging (Santos Junior & Oliveira, 2019).

The practice of the 3R's politics of reducing, reusing and recycling presents itself as a sustainable alternative in terms of packaging, and which has conquered several companies in the cosmetics production sector (Bom et al., 2019). In these actions, manufacturers seek to: i) reduce packaging (primary and secondary) to the minimum possible; ii) reuse long-lasting and refillable packaging (refills); iii) recycling, that is, reusing the material in new production cycles, making use of the so-called reverse logistics of post-consumption packaging (Sahota, 2014). In this way, the cosmetic packaging recycling process has gradually been adopted as a market strategy by several cosmetic industries (Furman et al., 2022).

In this context, consumer awareness about environmental problems and health itself is extremely important, so that this reflects in an increase in the demand for "clean" products, care for the environment and sustainability, so that we can guarantee resources suitable for the survival of future generations.

IV. CONCLUSION

With the present study, it is concluded that the demand for natural and sustainable products has been increasing significantly, especially with regard to the cosmetic industry. This change in consumer behavior is due to the awareness of the current environmental scenario and concern for their own health, which makes companies also show interest in these issues in order to position themselves in the market. However, the demand for sustainable cosmetics is still lower than the demand for conventional cosmetics, which is mainly due to consumer misinformation. This research can contribute to the

information and awareness of users so that everyone walks towards sustainability, in order to guarantee better environmental conditions for the next generations.

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