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Benefits of Oli-Ola and Pycnogenol Extracts in the Treatment of Melasma

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ABSTRACT

The pathology of melasma is a chronic acquired hypermelanosis located in the skin of a little-known cause. It may be influenced by several factors that contribute to the appearance of lesions, such as exposure to solar radiation, use of contraceptives, hormonal disorders, and gestational period. There is no cure for this hypermelanosis, but there are treatments and preventions that can soften the spots. Studies have shown the efficiency of using natural antioxidants such as Oli-Ola and pycnogenol to prevent and treat melasma for numerous benefits to the body. Therefore, this study aimed to demonstrate, through a literature review, the benefits of the natural extracts Oli-Ola and pycnogenol in the treatment of melasma. For this, a bibliographic survey was carried out at Google academic and Pubmed databases, where scientific articles published between the years 2014 and 2024 were selected. According to the analyzed studies, the natural extracts Oli-Ola and pycnogenol have antioxidant, anti-inflammatory actions and prevent skin aging. Oli-Ola acts as a cholesterol regulator and anti-hypertensive; it increases the immune system, has peeling action in capsules that stimulates collagen production, acts on firmness and elasticity of the skin, and acts as a depigmenting agent, leaving the skin tone more uniform. Pycnogenol assists in improving skin health. It protects collagen and elastin, is antimicrobial, a natural photoprotector, and is anti-photoaging. Therefore, using natural activities appears as an alternative for the treatment of melasma, requiring more research on their application potential.

Keywords: Natural actives, Melasma, Pycnogenol, Oli-Ola, Hypermelanosis, Antioxidants.

1 INTRODUCTION

The skin protects our body against external agents, thus preventing the entry of harmful compounds into the body. It consists of three layers, the epidermis, the outermost layer, the dermis, the middle layer, vascularized, where we find cells responsible for producing melanin, and the hypodermis layer, composed of adipose cells (Cunha, Silva, Oliveira, 2020).

The pathology of melasma is chronic hypermelanosis located in the skin, affecting the facial region in the areas of the central region, labial region, supralabial, mental region, and zygomatic region, and is less frequent in regions of the upper limbs. It causes the appearance of brownish spots

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due to cellular changes. Women between the ages of 30 to 55 years are the most affected, especially those of childbearing age. The emergence of this pathology is related to several factors, such as sun exposure, use of contraceptives, and hormonal disorders (Sousa *et al.*, 2020).

Melasma has an uncomplicated diagnosis, where an analysis is carried out in the region whit the lesion, being of paramount importance to distinguish it from other pathologies that affect the skin. For the treatment of melasma, the use of photoprotection is essential, as it contributes to the prevention and helps in the treatment. In addition, depigmenting agents are used to whitening the affected region. Currently, on the market, some products offer skin whitening and can also be used in melasma treatments, where their action is to inhibit melanin production, popularly considered competitive inhibitors of tyrosinase (Macedo, 2019).

The botanical extract of French pine bark (*Pinus pinaster*), pycnogenol, is a powerful antioxidant. Studies prove that this antioxidant is stronger than vitamins E and C, restores vitamin C and renews vitamin E, and strengthens the enzymatic system endogenous antioxidant due to its photoprotective action. Many studies have demonstrated the competence of the natural antioxidant Oli-Ola, a crude extract of the olive that contains hydroxytyrosol and is beneficial for the treatment of melasma. In the phenolic compounds of the olive extract, the main antioxidant is hydroxytyrosol, described as more vigorous (Macedo, 2019). Considering that melasma affects a large portion of the population, in the search for auxiliary and complementary treatments to conventional treatments, the objective of the present study was to analyze the benefits of natural extracts of Oli-Ola and pycnogenol as an alternative source of natural treatment, which does not offer health damage.

2 MATERIAL E METHODS

A literature review was carried out on the benefits of Oli-Ola and Pycnogenol extracts in the treatment of Melasma. For this, research was carried out on the subjects at Google Academic and Pubmed databases, where 49 articles were found between the years 2014 to 2025, and only 17 of them were used in the deepening of the study. The keywords searched were: Melasma, Melasma Physiology, types of treatments for Melasma, benefits and effectiveness of Oli-Ola and Pycnogenol, natural antioxidants, among others.

3 RESULTS AND DISCUSSIONS

Based on the data collection of the selected articles, it was observed that few studies address the treatment of melasma with natural actives. And for a better understanding of the pathology of melasma, the following research was carried out on the structure of the skin, physiology of melasma, and the benefits of the natural activities Oli-Ola and pycnogenol.

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3.1 Skin

The human body has the skin as its largest organ, representing 20% of body mass and having several functions in the body, such as a protective barrier, sensory organ, body temperature, and acts on the immune system. It has three layers: epidermis, dermis, and hypodermis (Macedo, 2019).

The epidermis is the outer layer of the skin, avascular, with a thickness of 75 to 150 μm , with 0.4 to 0.6 mm thick on the palms of the hands and soles of the feet. Its main function is to constitute a protective barrier, helping against external damage (Bernardo, Santos, 2019).

The dermis is the second deepest layer of the skin, made of dense, irregular connective tissue. It is between the epidermis and the subcutaneous tissue, abundant in collagen and elastin fibers. It can promote the support of the epidermis and act in physiological and pathological processes (Bernardo, Santos, 2019). It is where all the cell types responsible for producing melanin are located, such as the melanocytes found in the basal layer of the epidermis (Cunha, Silva, Oliveira, 2020). According to Macedo (2019), the dermis is characterized by collagen and elastin fibers reduced by fibroblasts, capillaries, arrector pili muscles, sebaceous and sweat glands, and nerve endings.

The hypodermis is the last layer of the skin, composed of adipose tissue, with the functions of controlling body temperature, protecting against shocks, and reserving energy and nutritional storage.

The skin expresses signs and symptoms that help to investigate diseases, which are pathologies properly linked to the skin or the beginning of other clinical pathologies (Agostinho *et al.*, 2013). According to studies, skin diseases can seriously impact on the quality of life, and dermatoses can affect self-esteem and generate anxiety, sadness, and even depression, especially melasma (Oliveira *et al.*, 2019).

3.2 Melasma and its classifications

Melasma is a common chronic hypermelanosis acquired in photo-exposed regions of the skin. It can affect both sexes, reaching more women of childbearing age. The cause of melasma is not completely known, and several factors influence it, such as exposure to ultraviolet rays (UV), use of contraceptives, hormonal disorders, and gestational period. It can be present in the epidermis and dermis, classified by clinical and histological characteristics. For the effectiveness of the treatment, the association of the use of sunscreen with depigmenting agents is essential (Cunha, Silva, Oliveira, 2020).

Wood's lamp melasma can be classified into four types: epidermal, dermal, mixed, and inapparent. The epidermal is the increase in coloration as light is absorbed by excess melanin in the basal and suprabasal regions. In the dermal, the increase is not noticed. In mixed melasma, the accumulation of melanin occurs in both the dermis and epidermis layers and is observed only in a few places. The inapparent presents itself in phototypes V and VI. In this case, melanin is a

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considerable part of the light incorporated by this pigment, so a small amount returns to the eyes and leaves the skin dark throughout (Tamler *et al.*, 2009).

3.3 Diagnosis, treatment, and prevention of melasma

According to Cunha, Silva, and Oliveira (2020), melasma is easily diagnosed but is considered a chronic disease, and its treatment is complex. It is allowed to point out that melasma occurs in several brownish tones that affect the regions most exposed to sunlight, such as the face. According to Medeiros *et al.* (2016), the evaluation of melasma is, above all, clinical. Its treatment is herbal, so it is possible that the disease resurfaces and appears frequently.

There is no cure for this pathology, but there are treatments and preventions that alleviate this hyperpigmentation, such as using sunscreen regularly. The treatment for melasma has the fundamental role of lightening the spots on the affected parts, the main forms of treatment are chemical peels, microdermabrasion, lasers, and pulsed light, but chemical peels offer more effective results, such as Tranexamic Acids, Mandelic Acids, Kojic, and Glycolic, which are depigmenting and reduce the action of melanocytes (Cunha, Silva, Oliveira, 2020).

According to Cunha, Silva, and Oliveira (2020), the therapeutic resource of this pathology can be classified by topical and oral use, and its focus is to decrease melanin synthesis and inhibit the growth of melanosomes. Currently, treatments use natural antioxidants to prevent and reduce oxidative damage caused by free radicals, which are the most significant cause of major skin problems, leading to the appearance of wrinkles, sagging, and skin aging. The body's cells produce these molecules, and their increase can generate oxidative stress causing damage due to poor skin care. The use of oral antioxidants is of paramount importance because it is a supplementation that helps in cellular defense.

3.4 Natural products

Brazil is one of the fastest-growing countries in the aesthetics market, ranking third in the world ranking of countries with the most profits from cosmetics. According to a study, the country stands out for its continuous growth. The composition of many cosmetics may contain substances toxic to the body. Some of these substances are parabens, petrolatum, and artificial dyes (Silva, Ferreira, Mangaravite, 2020).

Parabens are a class of chemical compounds, and their action is to preserve cosmetics, beauty products in general, medicines, and food products, fighting the growth of microorganisms. Petrolatum, on the other hand, is derived from petroleum, and its best-known names are Vaseline, mineral oil, or liquid paraffin because it is of low value. It is used in the manufacture of medicine and cosmetics in general. Artificial dyes, on the other hand, have no nutritional value, and their function is only for coloring, making the product more attractive (Silva, Ferreira, Mangaravite, 2020).

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According to Silva, Ferreira, and Mangaravite (2020), currently, there is a new demand for natural elements that replace chemical compounds, resulting in products that are animal-origin-free and free of petroleum derivatives. These natural substances are manipulated to produce cosmetics derived from natural plants, extracts, dyes, and natural oils. The effectiveness of these products is confirmed. Therefore, they do not present any number of synthetic compounds. There is great interest in the so-called eco-friendly industries since their purpose is to generate profit, improve the ecosystem and provide well-being to the public that uses it.

According to Speck and Zaneti (2019), with the growth of the cosmetic industry, nutritional techniques were developed, which will act from the inside out, helping in skin treatments.

The prevention of aging, the growing demand for cosmetics, healthy living habits, and the consumption of natural components are the biggest attractions in the nutricosmetics field. Among all these factors stands out the concept of beauty from the inside out, making it appealing to customers and offering alternatives to perform less invasive aesthetic procedures such as peelings and lasers (Speck, Zaneti, 2019).

3.5 Natural antioxidants

According to the authors Mangela and Martins (2021), antioxidants have a defensive action in the body, such as having an easy connection to free radicals, blocking the harmful effects on the skin. They interrupt free radicals formed either through cellular metabolism or from exogenous sources, intercepting the defense of lipids, amino acids, proteins, the double bond of polyunsaturated fatty acids, and DNA bases, preventing the emergence of new lesions and cellular damage. Over time, the levels of free radicals increase in the body, and the natural antioxidant protection reduces, then, is of paramount importance to replace these antioxidants.

The action of antioxidants is to inhibit and decrease the damage caused by free radicals in the cell. Specific vitamins act as antioxidants, such as retinol, ascorbic acid, and tocopherol, classified as vitamins A, C, and E (Santos, Oliveira, 2014). According to Santos and Oliveira (2014), the combination between antioxidants and health has been used for a long time. However, its effectiveness in skin treatments has recently been proven. Studies have shown substantial evidence that antioxidant vitamins act in the preservation, repair, and regeneration of the skin, and they also help in the hair and nails.

The replacement of antioxidants acquired in food is essential. In this way, it helps against the oxidation process, becoming a great supporter of the conservation of health. Antioxidants act against damage caused by free radicals, transferring the missing electron in their molecules. Then, the free radical is neutralized and does not reach the electrons of the next cells (Santos, Oliveira, 2014).

Hydroxytyrosol was found in the crude extract of olive (Oli-Ola), a polyphenol that acts on

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the development of human fibroblasts, preventing functional changes in elastin and collagen where oxidative stress occurs. In addition, hydroxytyrosol can be used to treat mild dyschromia, post-inflammatory hyperpigmentation, and melasma. It is considered a very potent antioxidant, and research also indicates that this antioxidant has high activity when compared to other vitamins, such as vitamins C and E. Pycnogenol is a potent antioxidant extracted from French pine (*Pinus pinaster*), an extract abundant in photochemical markers, procyanidins, phenolic acids, and catechins, among others. It has the action of recycling the ascorbyl radical and protecting vitamin E against free radicals. Studies have shown that its antioxidant action is high when related to vitamins E and C (Pinto *et al.*, 2015).

Currently, studies have shown that the use of antioxidants can reduce the damage caused by UV radiation on the skin and prevent the appearance of skin hyperpigmentation (Lonni *et al.*, 2014).

3.6 Oli-Ola extracts

Oli-Ola is a natural extract extracted from the fruit of the olive tree and standardized in hydroxytyrosol, the principal antioxidant present in the extract. Studies show that the effects of hydroxytyrosol are beneficial to health (Galena, 2021). It is antioxidant, cholesterol regulator, antihypertensive, anti-inflammatory, prevents aging, boosts the immune system, and inhibits the glycation process. In addition, Oli-Ola generates peeling action in capsules that stimulate collagen production, increase the lifespan of fibroblasts, acts on skin firmness and elasticity, decrease hyperpigmentation, and leave the skin tone more uniform, and activates cell renewal. Compared to other chemical and physical peels, Oli-Ola stands out for not causing skin discomfort, and it can be used in all skin types and does not cause harm to health (Galena, 2021).

According to Bagatin, Bagatin, and Campos (2020), hydroxytyrosol is the main antioxidant phenol found in olive extracts. Also, all these benefits can be used to treat melasma. As a powerful antioxidant, its action is reportedly more effective than vitamin C.

Another study showed that hydroxytyrosol has a potent action to eliminate free radicals and can protect the cytotoxicity caused by oxidative stress. Studies have even shown that hydroxytyrosol has an anti-inflammatory action that inhibits the expression of the metalloproteinase gene, which metalloproteins cause skin aging and is also present in the pathology of melasma. Thus, Oli-Ola, including hydroxytyrosol, has positive pharmacological effects, being a natural and safe choice for topical and oral treatment to prevent and maintain melasma (Bagatin, Bagatin, Campos, 2020).

According to Bagatin, Bagatin, and Campos (2020), treatments for melasma cannot only seek to inhibit tyrosinase but include therapies that include anti-aging and anti-inflammatory drugs. Therefore, hydroxytyrosol is a powerful antioxidant, restores the basement membrane, is anti-inflammatory, fights cytokines, and inhibits tyrosinase. In this way, it is evident that it is a very

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powerful ally in the dermatological treatment of melasma and can be used for long-term maintenance and post-treatment of pathology.

3.7 Pycnogenol

According to Pinto *et al.* (2015), pycnogenol, a powerful antioxidant, is found when extracted from French pine (*Pinus pinaster*). In vitro studies have shown that this antioxidant is more efficient than vitamins E and C, as it has the function of recycling vitamin C, recovering vitamin E, and strengthening the endogenous antioxidant enzyme system, as it has a protective action against UV rays.

Pycnogenol has the function of inhibiting tyrosine kinase and can regulate melanin biosynthesis. In vitro studies have shown that its attributes are to suppress superoxides, nitric oxide, and the hydroxyl radical, thus manifesting an important antioxidant (Pinto *et al.*, 2015).

Treatment with the natural extract of pycnogenol has brought many benefits to the skin. It is a rich antioxidant and natural photoprotector that helps to improve skin health, protects collagen and elastin, and has antimicrobial, anti-inflammatory, and anti-photoaging action. According to studies, patients who used pycnogenol to treat melasma showed a significant improvement in the lesions present and had no side effects (Cunha, Silva, Oliveira, 2020; Kunz and Da Silva, 2023).

According to Pinto *et al.* (2015), studies with antioxidants such as vitamins C and E, including pycnogenol, showed positive effects in hyperpigmentation treatments. Natural antioxidants used topically have the action of restoring the skin's antioxidant capacity. Research has tested the efficiency and safety of using pycnogenol in the treatment of melasma.

High efficiency was observed in the reduction of lesions and pigmentation. In addition, no adverse reactions were reported, and it can be considered a safe and efficient product to treat skin diseases such as melasma (Pinto *et al.*, 2015).

Studies have shown that patients treated with pycnogenol showed a remarkable improvement in their respective melasma conditions, in addition to providing relief from pain, fatigue, constipation, and anxiety in the evaluated patients (Lonni *et al.*, 2014).

The pathology of melasma can trigger physical and psychological disorders, and patients undergo treatments that often do not show positive results and even worsen the clinical picture. In this way, it is necessary to search for alternative treatments based on natural extracts, such as pycnogenol and Oli-Ola, with many benefits and the advantage of not offering health risks, restoring from the inside out, and leaving the skin beautiful and healthy, showing itself as a promising treatment.

4 CONCLUSIONS

Melasma is a hypermelanosis that can be considered a chronic pathology, it has no cure, but



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there are treatments for the control and whitening of lesions, such as chemical peels and lasers. The use of natural extracts such as Oli-Ola and pycnogenol emerges as an alternative treatment. They have antioxidant, depigmenting, and photoprotective properties, in addition to preventing the increase of pigmentary lesions, and their use does not pose a health risk. Therefore, patients with melasma find a new treatment option through these natural assets, obtaining satisfactory results. However, more research is needed on their application potential.

REFERENCES

AGOSTINHO, K. M.; CAVALCANTE, K. M. H.; CAVALCANTI, P. P.; PEREIRA, D. L. Doenças dermatológicas frequentes em unidade básica de saúde. *Cogitare Enfermagem*, v. 18, n. 4, p. 715-721, 2013.

BAGATIN, J. T. *Estudo clínico piloto para avaliar a eficácia do extrato de oliva contendo hidroxitirosol para tratamento oral e tópico do melasma*. 2020. Dissertação (Mestrado) – Faculdade de Ciências Farmacêuticas de Ribeirão Preto, São Paulo, 2020.

BERNARDO, A. F. C.; SANTOS, K.; SILVA, D. P. Pele: alterações anatômicas e fisiológicas do nascimento à maturidade. *Revista Saúde em Foco*, v. 1, n. 11, p. 1221-1233, 2019.

CUNHA, I. G.; SILVA, C. P.; OLIVEIRA, G. B. B. Principais tratamentos do melasma. *Humanidades e Tecnologia (FINOM)*, v. 23, n. 1, p. 302-315, 2020.

GALENA. *OLI-OLA: a excelência do fruto da oliveira*. 2021. Disponível em: <https://www.galena.com.br/oli-ola2020>. Acesso em: 14 nov. 2025.

KUNZ, K.; DA SILVA, L. S. L. Antioxidantes com potencial efeito fotoprotetor: revisão de literatura. *Revista Brasileira de Biomedicina*, v. 3, n. 2, 2023.

LONNI, A. A. S. G. et al. Nutricosmetics: an innovative concept. *Visão Acadêmica*, v. 15, n. 2, 2014.

MACEDO, J. R. B. C. *Fisiopatologia do melasma*. 2019. Monografia – Núcleo de Estudos e Treinamento Ana Carolina Puga (NEPUGA), São Paulo, 2019.

MANGELA, T.; MARINS, A. Benefícios da vitamina C na pele. *Enciclopédia Biosfera*, v. 18, n. 35, p. 41, 2021.

MEDEIROS, J. K. G. et al. Combinação terapêutica no tratamento do melasma. *CuidArte Enferm.*, v. 10, n. 2, p. 180-187, 2016.

OLIVEIRA, A. A. et al. Impacto do melasma na autoestima de mulheres. *ID Online Revista de Psicologia*, v. 13, n. 48, p. 435-443, 2019.

PINTO, C. A. S. et al. Uso do pycnogenol no tratamento do melasma. *Surgical & Cosmetic Dermatology*, v. 7, n. 3, p. 218-222, 2015.



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SANTOS, M. P.; OLIVEIRA, N. R. F. Ação das vitaminas antioxidantes na prevenção do envelhecimento cutâneo. *Disciplinarum Scientia Saúde*, v. 15, n. 1, p. 75-89, 2014.

SILVA, N. L.; FERREIRA, M. A. M.; MANGARAVIE, E. Estudo exploratório de conhecimento de consumidores e profissionais da estética sobre produtos naturais de beleza no Brasil. *Revista Científica da FAMINAS*, v. 15, n. 1, p. 1-11, 2020.

SOUSA, V. L. M. et al. Melasma: tratamento com método não invasivo. *Revista Brasileira Interdisciplinar de Saúde*, v. 2, n. 3, p. 80-86, 2020.

SPECK, M. M.; ZANEI, L. A.; MEDEIROS, F. D. Revisão sistemática: nutricosméticos utilizados nos tratamentos das disfunções estéticas. *Tecnologia em Cosmetologia e Estética – Tubarão*, 2019.

TAMLER, C. et al. Classificação do melasma pela dermatoscopia: estudo comparativo com lâmpada de Wood. *Surgical & Cosmetic Dermatology*, v. 1, n. 3, p. 115-119, 2009.