



ISSN: 2230-9926

Available online at <http://www.journalijdr.com>

# IJDR

International Journal of Development Research

Vol. 16, Issue, 05, pp. 70476-70480, May, 2026

<https://doi.org/10.37118/ijdr.30849.05.2026>



RESEARCH ARTICLE

OPEN ACCESS

## EFFICACY OF PHENOL IN AESTHETIC TREATMENTS FOR FACIAL RENEWAL

Amanda Gonçalves Machado<sup>1</sup>, Amanda Souza Santos<sup>1</sup>, Thaisa Ribeiro de Lacerda<sup>1</sup>, Êmile Gomes de Souza Cordeiro<sup>2</sup> and João Ronaldo Tavares de Vasconcellos Neto<sup>2</sup>

<sup>1</sup>Undergraduate student of the Biomedicine Program at the Higher Education Unit of Feira de Santana (UNEF)

<sup>4</sup>Professor of the Biomedicine Program at the Higher Education Unit of Feira de Santana (UNEF)

### ARTICLE INFO

#### Article History:

Received 17<sup>th</sup> February, 2026

Received in revised form

26<sup>th</sup> March, 2026

Accepted 14<sup>th</sup> April, 2026

Published online 30<sup>th</sup> May, 2026

#### Key Words:

Phenol, Efficacy, Cosmetic Techniques

#### \*Corresponding author:

Dr. Munnaza Shaikh

### ABSTRACT

**Introduction:** Phenol has been widely used in aesthetic procedures, particularly in deep chemical peels for facial rejuvenation, addressing the research problem. **Objective:** To investigate the efficacy of phenol in aesthetic procedures. **Methodology:** This was a bibliographic study of an exploratory-descriptive nature with a qualitative approach. Data collection was conducted between 2020 and 2024. The literature search was carried out in the Scientific Electronic Library Online (SciELO), PubMed, and the Virtual Health Library (VHL). Searches were conducted using the Health Sciences Descriptors (DeCS) from the Regional Library of Medicine (Bireme): Phenol, Efficacy, Cosmetic Techniques in both Portuguese and English, with the help of the Boolean operator "AND." **Results and Discussion:** Although phenol provides dramatic results, its use is generally reserved for cases where other treatments fail to achieve the desired effect. Comparative studies show that phenol may be preferred for deeper rejuvenation, while substances like AHA are recommended for less invasive treatments and patients with moderate signs of aging (KABAKCI *et al.*, 2024). **Conclusion:** Phenol remains a powerful tool in aesthetic procedures for deep rejuvenation, albeit with higher risks and the need for clinical monitoring.

Copyright©2026, Amanda Gonçalves Machado *et al.* This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Amanda Gonçalves Machado, Amanda Souza Santos, Thaisa Ribeiro de Lacerda, Êmile Gomes de Souza Cordeiro and João Ronaldo Tavares de Vasconcellos Neto, 2026. "Efficacy of pHenol in aesthetic Treatments for Facial Renewal". *International Journal of Development Research*, 16, (05), 70476-70480.

## INTRODUCTION

Phenol is widely used in aesthetic procedures, particularly in deep chemical peels, due to its ability to promote intense exfoliation and cellular renewal. Studies indicate its effectiveness in reducing wrinkles, hyperpigmentation, and other signs of aging, making it a preferred choice for treatments aiming at significant skin rejuvenation (VELASCO *et al.*, 2004). However, phenol application requires caution due to its toxicity and adverse effects, such as the possibility of systemic effects, which necessitates rigorous patient monitoring during the procedure (VELASCO *et al.*, 2004; WAKADE *et al.*, 2016). Compared to other agents, such as glycolic acid and trichloroacetic acid (TCA), phenol demonstrates a greater depth of action. TCA peels are commonly used in lower concentrations for medium and superficial treatments, proving effective in cases of melasma and photoaging, with a lower risk of systemic side effects (ABDELMEGUID *et al.*, 2015; SARKAR *et al.*, 2016). Glycolic acid, on the other hand, is valued for its lower toxicity and higher tolerability, making it preferable for cases requiring superficial to medium exfoliation, in addition to providing skin hydration (KUBIAK *et al.*, 2014; DAYAL *et al.*, 2016). Phenol procedures, along with controlled application, are mainly indicated for skin with advanced signs of sun damage or aging (KONTOCHRISTOPOULOS *et al.*, 2016). This technique promotes cellular renewal, which can restore skin texture and uniformity, although recovery involves an

extended period with possible discomfort and intense occurrences. In contrast, alternatives such as TCA in medium concentrations and glycolic acid peels are preferred by patients seeking less aggressive treatments and shorter recovery times (SARKAR *et al.*, 2017; MCDANIEL *et al.*, 2017). The research problem to be investigated is the efficacy of phenol compared to other chemical substances in aesthetic procedures, considering the depth of action, risks, and benefits for different skin types. This study aims to list procedures using phenol, describe its biochemical principles, and compare its efficacy with other substances. The justification lies in the need for a thorough analysis that assists in making informed decisions about rejuvenation methods, comfort, safety, and overwhelming results for patients.

## METHODOLOGY

This study is characterized as a bibliographic research of an exploratory-descriptive nature with a qualitative approach, developed based on previously published material on the efficacy of phenol in aesthetic procedures. According to Gil (2022), bibliographic research relies on prepared materials, such as books and scientific articles, enabling a theoretical survey for an in-depth understanding of the topic. The exploratory nature aims to identify fundamental concepts and analyze practical applications of phenol in aesthetic procedures,

providing a foundation for developing strategies to optimize its use and comparisons with other commonly used substances (GIL, 2022). Descriptive research, as described by Gonçalves (2003), records, analyzes, and interprets data, establishing connections between observed characteristics. The qualitative approach adopted in this study emphasizes the depth of the information investigated, allowing a rich and detailed understanding of the efficacy, biochemical principles of action, and comparisons of phenol with other cosmetic techniques (MINAYO, 1994). This approach enables correlating the efficacy of phenol with the risks and benefits of other aesthetic treatments, highlighting the importance of evidence-based interventions. For data collection, a bibliographic survey was conducted in renowned databases such as PubMed, Scientific Electronic Library Online (SciELO), and Latin American and Caribbean Literature on Health Sciences (LILACS), covering publications from the last five years (2018–2023). Full and relevant articles available in Portuguese, English, and Spanish, meeting the study's scope, were selected. Articles unrelated to the theme, duplicate materials, incomplete works, or opinion-based content were excluded. The databases were accessed using the Virtual Health Library (VHL) and the Health Sciences Descriptors (DeCS), applying the Boolean operators "AND" and "OR" to refine search results. The keywords used in the search were: "Phenol," "Efficacy," "Cosmetic Techniques," and their alternative terms. The searches resulted in an initial selection based on titles and abstracts, followed by a detailed analysis of articles meeting the inclusion criteria. The data were organized into three discussion axes guided by the study's specific objectives: (1) aesthetic procedures using phenol, (2) biochemical principles of phenol's action on the human body, and (3) comparisons of phenol use with other options in aesthetic treatments. This structure provided a robust foundation for analyzing and discussing the results, ensuring the validity and depth of the presented considerations.

## RESULTS AND DISCUSSION

**Aesthetic Procedures Using Phenol:** Chemical peels are recognized for their efficiency in treating various dermatological conditions, such as skin dehydration, stretch marks, and uneven pigmentation. They are also recommended for removing actinic keratoses, minimizing wrinkles, and correcting pigmentation discrepancies, as well as treating acne and scars. These procedures promote skin rejuvenation, improving its texture and overall appearance (VELASCO *et al.*, 2004). In the treatment of melasma and periorbital dark circles, methods using phenol, especially in combination with croton oil, have proven safe and effective, even for skin type V (MAYRA B.C. MAYMONE *et al.*, 2024). Both superficial and deep peels are widely used in managing acne vulgaris, a persistent inflammatory condition primarily affecting adolescents, using traditional agents such as phenol and salicylic acid, or modern alternatives with better safety profiles (DAYAL *et al.*, 2016). Trichloroacetic acid (TCA) is one of the most versatile chemical agents, used in concentrations of 35% to 50% for medium-depth peels, reaching the upper reticular dermis, promoting facial rejuvenation and epidermal balance (KUBIAK; MUCHA; ROTSZTEJN, 2019). On the other hand, phenol, used in intensive exfoliations, denatures proteins, stimulates collagen and elastin synthesis, and interferes with melanocytes, being effective in treating dark circles and atrophic scars (Platsidaki *et al.*, 2022). The combination of phenol with other agents, such as Jessner's solution, enhances its effects in wrinkle treatment and skin firmness improvement (SAADAWI *et al.*, 2018a). Meanwhile, glycolic acid and TCA peels are recommended for treating melasma and hyperpigmentation, eliminating dead cells and renewing the skin (GARG *et al.*, 2019).

Chemical peels also act in reducing the stratum corneum and epidermis, dispersing melanin, and eliminating epidermal pigmentation, being essential in managing periorbital hyperpigmentation (DAYAL; SANGAL; SAHU, 2020). Agents such as salicylic acid and TCA are widely used in acne treatment, including inflammatory and non-inflammatory lesions. However, for higher skin phototypes, such as IV to VI, caution is needed to avoid

undesirable hyperpigmentation (ABDEL HAY *et al.*, 2019). Alternatively, lactic and glycolic acids are effective for dry skin, promoting rejuvenation, spot lightening, and hydration, while salicylic and retinoic acids are recommended for oily skin due to their action on acne and enlarged pores (NOFAL *et al.*, 2018). Aesthetic procedures, such as peels combined with microneedling, have gained prominence for evening out skin texture, treating acne scars, and achieving faster results in cellular rejuvenation (RANA; MENDIRATTA; CHANDER, 2017b). However, these treatments require caution, as they may cause adverse reactions such as irritation, hyperpigmentation, and even new scars. Additionally, combinations of techniques, such as carboxytherapy and mesotherapy with vitamin C, are also effective for rejuvenation and collagen production, further enhancing aesthetic results (AHMED; MOHAMMED; FATANI, 2018). These approaches promote cellular renewal, providing lightening and uniform texture in the treated areas. Chemical peels are indispensable tools in aesthetic dermatology, offering various therapeutic possibilities. While highly effective in managing acne, melasma, scars, and wrinkles, each chemical agent has specific indications and associated risks, especially for higher skin phototypes. Innovations in application methods and combinations with other techniques demonstrate advances in the safety and efficacy of these treatments, providing high satisfaction rates among patients and expanding options for dermatologists and other professionals in the field (RANA; MENDIRATTA; CHANDER, 2017b; AHMED; MOHAMMED; FATANI, 2018).

### **Princípios Bioquímicos da Atuação do Fenol no Corpo Humano:**

Os peelings químicos desempenham um papel crucial nos tratamentos estéticos, atuando em diferentes camadas da pele para promover rejuvenescimento e melhora da textura. O TCA, por exemplo, age na epiderme e na derme, promovendo esfoliação e renovação celular. O fenol, por sua vez, coagula proteínas em concentrações inferiores a 1% e apresenta atividade bactericida em concentrações maiores. O óleo de cróton, quando combinado com o fenol, potencializa sua penetração cutânea ao aumentar a vascularização do local. A água, usada como veículo, ajusta a concentração desejada do fenol, garantindo a eficácia do peeling (VELASCO *et al.*, 2004). Além disso, o resorcinol, com estrutura química semelhante ao fenol, desestrutura as fibras de queratina, contribuindo para a modificação da proteína (DAYAL *et al.*, 2016). O ácido ferúlico é outra substância promissora no arsenal dos peelings químicos. Ele atua como despigmentante ao inibir a enzima tirosinase, responsável pela produção de melanina, além de proteger estruturas cutâneas como fibroblastos e colágeno. Seu papel antioxidante é importante para reduzir os danos causados por espécies reativas de oxigênio e radiação ultravioleta, promovendo a renovação da pele (CHAUHAN; SINGH., 2020). Como um antioxidante fenólico natural, o ácido ferúlico tem mostrado eficácia no manejo de hiperpigmentações devido à sua ação despigmentante (DAYAL; SANGAL; SAHU, 2020). Os peelings à base de fenol têm amplo uso estético devido à sua capacidade de alcançar camadas profundas da pele, promovendo esfoliação intensa e estimulação de colágeno e elastina. Essa profundidade de ação proporciona firmeza e elasticidade, mas o uso inadequado pode causar necrose e toxicidade em órgãos como rins e fígado (SAADAWI *et al.*, 2018a; GARG *et al.*, 2019). O fenol também reduz a ação da tirosinase, resultando em uma pele mais uniforme e com menos pigmentação (ELLABBAN *et al.*, 2019). No entanto, devido aos riscos associados, o acompanhamento profissional rigoroso é indispensável.

Os ácidos salicílico, tricloroacético e azelaico também desempenham papéis importantes em tratamentos estéticos. O TCA atua promovendo rejuvenescimento facial e desobstrução dos poros, enquanto o ácido salicílico, com propriedades anti-inflamatórias, reduz a cascata do ácido aracônico e esfolia a pele. Já o ácido azelaico reduz bactérias associadas a inflamações acneicas, tornando-se uma opção eficaz no tratamento de acne (ABDEL HAY *et al.*, 2019). Além disso, os ácidos glicólico e salicílico são conhecidos por melhorar a textura da pele e estimular a produção de colágeno, sendo úteis na redução de cicatrizes e rugosidades (KUROKAWA; OISO; KAWADA, 2016). O fenol, além de promover firmeza e elasticidade,

apresenta propriedades antibacterianas e anti-inflamatórias, o que diminui o risco de infecção durante a cicatrização e acelera o tempo de recuperação. Embora sua ação desidrate células da epiderme e coagula proteínas, ele desencadeia inflamação que estimula a renovação celular e a formação de novas camadas dérmicas. Esse processo reforça o papel do fenol no rejuvenescimento, mas exige controle rigoroso para evitar complicações e maximizar os benefícios do tratamento (DE MENDONÇA *et al.*, 2018). Assim, os peelings químicos se consolidam como ferramentas indispensáveis em tratamentos dermatológicos e estéticos, desde que utilizados com cuidado e profissionalismo.

#### **Biochemical Principles of Phenol's Action on the Human Body:**

Chemical peels play a crucial role in aesthetic treatments, acting on different skin layers to promote rejuvenation and texture improvement. TCA, for instance, acts on the epidermis and dermis, promoting exfoliation and cellular renewal. Phenol, on the other hand, coagulates proteins at concentrations below 1% and exhibits bactericidal activity at higher concentrations. When combined with croton oil, phenol's skin penetration is enhanced by increasing local vascularization. Water, used as a vehicle, adjusts phenol's concentration to ensure the effectiveness of the peel (VELASCO *et al.*, 2004). Additionally, resorcinol, with a chemical structure similar to phenol, disrupts keratin fibers, contributing to protein modification (DAYAL *et al.*, 2016). Ferulic acid is another promising substance in the arsenal of chemical peels. It acts as a depigmenting agent by inhibiting the enzyme tyrosinase, responsible for melanin production, and protects skin structures such as fibroblasts and collagen. Its antioxidant role is crucial for reducing damage caused by reactive oxygen species and ultraviolet radiation, promoting skin renewal (CHAUHAN; SINGH, 2020). As a natural phenolic antioxidant, ferulic acid has shown efficacy in managing hyperpigmentation due to its depigmenting action (DAYAL; SANGAL; SAHU, 2020). Phenol-based peels are widely used in aesthetics due to their ability to penetrate deep skin layers, promoting intense exfoliation and collagen and elastin stimulation. This depth of action provides firmness and elasticity, but improper use can cause necrosis and toxicity in organs such as the kidneys and liver (SAADAWI *et al.*, 2018a; GARG *et al.*, 2019). Phenol also reduces tyrosinase activity, resulting in more uniform skin with reduced pigmentation (ELLABBAN *et al.*, 2019). However, due to the associated risks, strict professional supervision is indispensable. Salicylic, trichloroacetic, and azelaic acids also play essential roles in aesthetic treatments. TCA promotes facial rejuvenation and pore unclogging, while salicylic acid, with its anti-inflammatory properties, reduces the arachidonic acid cascade and exfoliates the skin. Azelaic acid reduces bacteria associated with acne inflammation, making it an effective option in acne treatment (ABDEL HAY *et al.*, 2019). Furthermore, glycolic and salicylic acids are known to improve skin texture and stimulate collagen production, proving useful in reducing scars and roughness (KUROKAWA; OISO; KAWADA, 2016). In addition to promoting firmness and elasticity, phenol exhibits antibacterial and anti-inflammatory properties, reducing the risk of infection during healing and accelerating recovery time. While its action dehydrates epidermal cells and coagulates proteins, it triggers inflammation that stimulates cellular renewal and the formation of new dermal layers. This process reinforces phenol's role in rejuvenation but requires rigorous control to avoid complications and maximize treatment benefits (DE MENDONÇA *et al.*, 2018). Thus, chemical peels remain indispensable tools in dermatological and aesthetic treatments, provided they are used carefully and professionally.

#### **Efficacy of Phenol and other Substances in Aesthetic Procedures:**

Superficial chemical peels, such as trichloroacetic acid (TCA) at low concentrations and glycolic acid (GA) at high concentrations, offer significant benefits in skin regeneration. They reduce the thickness of the stratum corneum, enhance elastic fibers, and stimulate collagen production, delaying skin aging and promoting recovery from sun damage. GA, in particular, is effective in treating dry skin, spots, and aging signs, correcting imperfections with a lower risk of irritation (KUBIAK *et al.*, 2014). Additionally, Jessner's solution (JS), composed of salicylic acid, resorcinol, and lactic acid, is widely used

in acne vulgaris due to its efficacy, safety, and quick recovery (DAYAL *et al.*, 2016). Minimally invasive aesthetic procedures are increasingly popular for offering quick, safe, and natural results. These techniques provide facial harmonization and require less recovery time, with minimal impact on patients' daily activities (FAROLLCH PRATS; MIRADA DONISA; VILLANUEVA, 2021). For melasma treatment, phenol peels combined with castor oil have shown promising results, especially in hyperpigmentation conditions (MAYRA B.C. MAYMONE *et al.*, 2024). Meanwhile, phytic acid, a less aggressive option, is used for gentle exfoliation to prevent dark spots, lighten skin, and even tone (GENTILI *et al.*, 2022). TCA at 20% is a chemical exfoliant that stimulates dermal collagen volume, yielding aesthetic results such as reducing dark circles pigmentation and lowering the risk of side effects when combined with other agents (Platsidaki *et al.*, 2022). The HARMONY study highlighted significant improvements in patients' self-esteem, mental well-being, and appearance, reinforcing the relevance of aesthetic treatments for mental health (COHEN *et al.*, 2021). Moreover, the combination of chemical peels with home care enhances results and ensures greater patient satisfaction, provided the risks and contraindications are considered (CALVISI, 2021). Mesotherapy, a method involving the injection of small amounts of substances into the dermis, improves skin texture, promotes hydration, and reduces imperfections. Combined with acids like lactic and ferulic, it provides superior results, as shown in comparative studies (CHAUHAN; SINGH, 2020). TCA and GA peels, despite differing mechanisms of action, have similar efficacy in skin regeneration and melasma treatment, with lactic acid peels being better tolerated by patients with sensitive skin (SAHU; DAYAL, 2021). GA stands out as the most efficient in treating periorbital hyperpigmentation, especially at concentrations of 20%, while lactic and ferulic acids are safe options for sensitive skin (DAYAL; SANGAL; SAHU, 2020). Chemical peels such as GA and TCA are widely used in dermatology to treat conditions like acne, melasma, and scars, promoting rejuvenation and cellular renewal. Microneedling enhances the efficacy of peels like TCA, promoting deeper penetration and better aesthetic outcomes (KONTOCHRISTOPOULOS *et al.*, 2016). Despite their general safety and efficacy, improper use can lead to complications such as hyperpigmentation and scarring. Therefore, it is essential that these procedures are performed by trained professionals to ensure safety and satisfactory results (WAKADE; NAYAK; BHATT, 2016).

## CONCLUSION

Phenol remains an important agent in aesthetic treatments, particularly in deep chemical peels, due to its efficacy in promoting facial rejuvenation, reducing wrinkles and hyperpigmentation, and stimulating cellular renewal. However, its use requires caution due to associated risks, such as systemic toxicity, necessitating rigorous clinical monitoring. Compared to other substances, such as glycolic acid and trichloroacetic acid (TCA), phenol provides greater depth of action and more intense results, making it more suitable for skin with advanced signs of aging or damage. Alternatives like medium-strength TCA and glycolic acid are preferred for less invasive treatments, offering faster recovery and lower risk of side effects. Technical advancements, such as the combination of phenol and croton oil, have improved its safety and efficacy, making it applicable to a broader range of patients, including those with higher phototypes. The choice of method should be based on an individual analysis, considering aesthetic goals, expected benefits, and potential risks, ensuring effective and safe interventions.

## REFERENCES

- ABDEL HAY, R. *et al.* Avaliação clínica e dermatoscópica de peeling químico combinado (ácido salicílico 20% e ácido azelaico 20%) versus ácido tricloroacético 25% em acne: um RCT. *Journal of Dermatological Treatment*, v. 30, n. 6, p. 572–577, 1 mar. 2019.

- ABDEL MEGUID, AM; ATTALLAH, DAE; OMAR, H. Ácido tricloroacético versus ácido salicílico no tratamento da acne vulgar em pacientes de pele escura. *Dermatologic Surgery*, v. 41, n. 12, p. 1398–1404, dez. 2015.
- ABDEL-MOTALEB, AA; BAKR, RM Microdermoabrasão assistida por entrega de peeling de ácido glicólico 70% para o tratamento de melasma em pacientes de pele escura. *Dermatologic Therapy*, v. 34, n. 4, 11 jun. 2021.
- AHMED, NA; MOHAMMED, SS; FATANI, MI Tratamento de olheiras periorbitais: Estudo comparativo de carboxiterapia vs peeling químico vs mesoterapia. *Journal of Cosmetic Dermatology*, v. 18, n. 1, p. 169–175, 16 maio 2018.
- AL-TALIB, H. et al. Eficácia e segurança do peeling químico superficial no tratamento da acne vulgar ativa. *Anais Brasileiros de Dermatologia*, v. 92, n. 2, p. 212–216, 2017.
- CALVISI, L. Eficácia de uma combinação combinada de peeling químico e gel tópico à base de ácido salicílico no tratamento de acne ativa. *Journal of Cosmetic Dermatology*, v. 20, n. S2, p. 2–6, jul. 2021.
- CHAUHAN, A.; SINGH, S. Análise comparativa da eficácia do ácido láctico com peeling ferúlico (peeling combinado) vs peeling sozinho como monoterapia para fotoenvelhecimento. *Aesthetic Plastic Surgery*, v. 45, 21 out. 2020.
- COHEN, JL et al. Tratamento estético facial multimodal na aparência do envelhecimento, confiança social e bem-estar psicológico: estudo HARMONY. *Aesthetic Surgery Journal*, v. 42, n. 2, 5 mar. 2021.
- DAYAL, S. et al. Eficácia clínica e segurança de peeling glicólico a 20%, peeling láctico a 15% e vitamina C tópica a 20% no tipo constitucional de melnose periorbital: um estudo comparativo. *Journal of Cosmetic Dermatology*, v. 15, n. 4, p. 367–373, 6 jul. 2016.
- DAYAL, S. et al. Solução de Jessner vs. peelings de ácido salicílico a 30%: um estudo comparativo da eficácia e segurança na acne vulgaris leve a moderada. *Journal of Cosmetic Dermatology*, v. 16, n. 1, p. 43–51, 25 ago. 2016.
- DAYAL, S.; SAHU, P. Peeling de ácido ferúlico 12%: Um peeling inovador para o tipo constitucional de melnose periorbital — Comparando eficácia clínica e segurança com peeling glicólico 20% e peeling láctico 15%. *Journal of Cosmetic Dermatology*, 16 jan. 2020.
- DAYAL, S.; SAHU, P.; DUA, R. Combinação de peeling de ácido glicólico e creme tópico de ácido azelaico a 20% em pacientes com melasma: eficácia e melhora na qualidade de vida. *Journal of Cosmetic Dermatology*, v. 16, n. 1, p. 35–42, 8 ago. 2016.
- DE MENDONÇA, MCC et al. Peeling Pontuado de Fenol 88% para o Tratamento do Fotoenvelhecimento Facial: Um Estudo Clínico e Histopatológico. *Dermatologic Surgery*, v. 44, n. 2, p. 241–247, fev. 2018.
- DORGHAM, NA et al. Eficácia e tolerabilidade do peeling químico como agente único para melasma em pacientes de pele escura: Uma revisão sistemática e meta-análise de ensaios comparativos. *Journal of Cosmetic Dermatology*, v. 19, n. 11, p. 2812–2819, 1 nov. 2020.
- ELLABBAN, NF et al. Eficácia e tolerabilidade do uso de plasma rico em plaquetas versus peeling químico na hiperpigmentação periorbital. *Journal of Cosmetic Dermatology*, v. 18, n. 6, p. 1680–1685, 25 abr. 2019.
- FAROLLCH PRATS, L.; MIRADA DONISA, E.; VILLANUEVA, C. “WAY”: Um meio prático para identificar e tratar o processo de envelhecimento. *Journal of Cosmetic Dermatology*, v. 20, n. 6, p. 1837–1845, 1 jun. 2021.
- GARG, S. et al. Eficácia comparativa de um peeling de ácido glicólico a 35% sozinho ou em combinação com um peeling local de ácido tricloroacético a 10% e 20% para melasma. *Dermatologic Surgery*, v. 45, n. 11, p. 1394–1400, nov. 2019.
- GENTILI, G. et al. Eficácia e segurança de um novo peeling formulado com um pool de PHAs para o tratamento de todos os tipos de pele, mesmo as sensíveis. *Journal of Cosmetic Dermatology*, v. 22, n. 2, p. 517–528, fev. 2023.
- HOW, KN et al. Eficácia e segurança do peeling de solução de Jessner em comparação com o peeling de ácido salicílico 30% no tratamento de pacientes com acne vulgar e hiperpigmentação pós-acne com pele de cor: um ensaio randomizado, duplo-cego, de face dividida e controlado. *International Journal of Dermatology*, v. 59, n. 7, p. 804–812, 24 maio 2020.
- HWANG, SH et al. Eficácia e segurança da matriz de cartilagem articular liofilizada como preenchimento facial injetável. *Aesthetic Plastic Surgery*, v. 45, n. 3, p. 1266–1272, 20 nov. 2020.
- KAMINAKA, C. et al. Avaliação clínica do peeling químico de ácido glicólico em pacientes com acne vulgar: um estudo comparativo randomizado, duplo-cego, controlado por placebo e de face dividida. *Dermatologic Surgery*, v. 40, n. 3, p. 314–322, mar. 2014.
- KOŁODZIEJCZAK, A.; ROTSZTEJN, H. A avaliação dos efeitos da combinação de microdermoabrasão e peeling de cavitação na terapia da pele seborreica com sintomas visíveis de acne punctata. *Journal of Cosmetic and Laser Therapy*, v. 21, n. 5, p. 286–290, 9 out. 2018.
- KONTOCHRISTOPOULOS, G. et al. Combinação de microagulhamento e peelings de ácido tricloroacético a 10% no tratamento de olheiras infraorbitais. *Journal of Cosmetic and Laser Therapy*, v. 18, n. 5, p. 289–292, 15 abr. 2016.
- KUBIAK, M. et al. Avaliação de peelings glicólicos a 70% versus peelings tricloroacéticos a 15% para o tratamento de pele facial fotodanificada em mulheres idosas. *Dermatologic Surgery*, v. 40, n. 8, p. 883–891, ago. 2014.
- KUBIAK, M.; MUCHA, P.; ROTSZTEJN, H. Estudo comparativo de peeling de ácido tricloroacético a 15% combinado com peeling de ácido glicólico a 70% e ácido tricloroacético a 35% para o tratamento de pele facial fotodanificada em mulheres envelhecidas. *Journal of Cosmetic Dermatology*, v. 19, n. 1, p. 137–146, 11 out. 2019.
- KUROKAWA, I.; OISO, N.; KAWADA, A. Tratamento alternativo adjuvante com peeling químico e subsequente iontoforese para hiperpigmentação pós-inflamatória, erosão com pápulas vermelhas inflamadas e cicatrizes atróficas não inflamadas em acne vulgar. *The Journal of Dermatology*, v. 44, n. 4, p. 401–405, 15 out. 2016.
- MANDAL, P.; GAMA, F. O uso de preenchimentos perioculares em medicina estética. *Journal of Plastic, Reconstructive & Aesthetic Surgery*, jan. 2021.
- MAYMONE, MBC et al. Eficácia comparativa de longo prazo de peelings químicos de fenol-óleo de croton para melasma persistente em concentrações variadas de óleo de croton tiglium. *Journal of the American Academy of Dermatology*, v. 91, n. 2, 1 abr. 2024.
- MOHAMED ALI, BM et al. Avaliação do peeling de ácido salicílico em comparação com tretinoína tópica no tratamento da hiperpigmentação pós-inflamatória. *Journal of Cosmetic Dermatology*, v. 16, n. 1, p. 52–60, 15 dez. 2016.
- NOFAL, E. et al. Peelings químicos combinados são mais eficazes do que peelings químicos simples no tratamento de acne vulgaris leve a moderada: Um ensaio clínico comparativo de face dividida. *Journal of Cosmetic Dermatology*, v. 17, n. 5, p. 802–810, 10 set. 2018.
- PLATSIDAKI, E. et al. Eficácia e segurança do peeling combinado de fenol e ácido tricloroacético para o tratamento de olheiras. *Actas Dermosifiligr*, v. 113, n. 10, pág. T988-T990, nov./dez. 2022.
- RANA, S.; MENDIRATTA, V.; CHANDER, R. Eficácia do microagulhamento com peeling de ácido glicólico a 70% versus microagulhamento sozinho no tratamento de cicatrizes atróficas de acne - Um ensaio clínico randomizado. *Journal of Cosmetic Dermatology*, v. 16, n. 4, p. 454–459, 26 out. 2017.
- ROUVRAIS, C. et al. Eficácia antienvelhecimento de um creme à base de retinaldeído em comparação com sessões de peeling de ácido glicólico: Um estudo controlado randomizado. *Journal of Cosmetic Dermatology*, v. 17, n. 6, p. 1136–1143, 19 jul. 2018.
- SAADAWI, AN et al. Microagulhamento por dermapen e peeling de ácido glicólico para tratamento de cicatrizes de acne: Estudo comparativo. *Journal of Cosmetic Dermatology*, v. 18, n. 1, p. 107–114, 9 dez. 2018.

- SAHU, P.; DAYAL, S. Peeling químico superficial mais valioso para melasma de pele negra: experiência dos autores com peeling de ácido glicólico, tricloroacético e láctico. *Dermatologic Therapy*, 7 jan. 2021.
- SAHU, P.; DAYAL, S.; BHARDWAJ, N. Peeling tópico de ácido tranexâmico a 5% com ácido glicólico a 30%: Uma combinação útil para acelerar a melhora do melasma. *Dermatologic Therapy*, v. 34, n. 6, 31 ago. 2021.
- SANTOS-CAETANO, JP *et al.* Uso cosmético de três hidratantes tópicos após peelings faciais com ácido glicólico. *Journal of Cosmetic Dermatology*, v. 19, n. 3, p. 660–670, 19 jul. 2019.
- SARKAR, R. *et al.* Avaliação comparativa da eficácia e tolerabilidade de peelings combinados de ácido glicólico, ácido mandélico salicílico e ácido fítico em melasma. *Dermatologic Surgery*, v. 42, n. 3, p. 384–391, mar. 2016.
- SARKAR, R.; PARMAR, NV; KAPOOR, S. Tratamento da hiperpigmentação pós-inflamatória com uma combinação de peelings de ácido glicólico e um regime tópico em pacientes de pele escura: um estudo comparativo. *Dermatologic Surgery*, v. 43, n. 4, p. 566–573, abr. 2017.
- SCARANO, A. *et al.* Avaliação clínica da eficácia e tolerância de um composto recondicionante da pele para antienvelhecimento. *Journal of Biological Regulators and Homeostatic Agents*, v. 35, n. 2 Suppl. 1, p. 217–226, 2021.
- TANG, J. *et al.* Os fatores que influenciam os efeitos não atendidos dos peelings de ácido alfa-hidroxi na acne vulgar: uma experiência de um único centro terciário. *Dermatologic Therapy*, v. 34, n. 4, 12 abr. 2021.
- VELASCO, MVR *et al.* Rejuvenescimento da pele por peeling químico: abordagem no peeling de fenol. *Anais Brasileiros de Dermatologia*, v. 1, pág. 91–99, 1º de fevereiro. 2004.
- WAKADE, DV; NAYAK, CS; BHATT, KD Um estudo comparando a eficácia da radiofrequência monopolar e peelings de ácido glicólico no rejuvenescimento facial da pele envelhecida usando histopatologia e ultrassonografia microscópica (UBM) – um estudo baseado em evidências. *Acta Medica (Hradec Kralove, República Tcheca)*, v. 59, n. 1, p. 14–17, 2016.

\*\*\*\*\*