

Editorial

Application of Plant-Based Molecules and Materials in Cosmetics

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With the growing demand for products that are gentle on the skin and manufactured by eco-friendly means, the field of cosmetics is witnessing a remarkable shift toward natural ingredients. This Special Issue of Cosmetics delves into the fascinating realm of plant-based molecules and materials, navigating their potential to transform the cosmetic industry.

Since ancient times, plants have been considered a source of nourishment, healing, and beauty. Traditional botanical medicines have been employed to alleviate ailments for centuries, and in recent years, the therapeutic effects of plant-derived active molecules and nanomaterials have been scientifically recognized and amplified [1,2]. Gradually, the adoption of plant-based molecules and materials in the field of cosmetics has garnered significant attention, with increasing numbers of studies exploring their properties and effectiveness [3,4]. This shift towards natural cosmetics aligns with the current trend of “clean” beauty products that foster healthy skin conditions by excluding harmful chemicals, animal extracts, and synthetic ingredients [5]. The rapid expansion of the global cosmetic industry has created a broad market for plant-based cosmetic ingredients that can have multiple beneficial effects, such as depigmentation, brightening, and anti-aging [6].

A total of 10 manuscripts, comprising 7 research articles, a communication, and 2 reviews, are included in the Special Issue “Application of Plant-Based Molecules and Materials in Cosmetics”, where each underwent a rigorous and systematic review process by the Cosmetics editorial team. These contributions are briefly summarized below:

Wan-Teng Lin et al. investigated the potential of an essential oil prepared from *Glossogyne tenuifolia* as a natural skin-whitening agent. The study (1) demonstrates the oil’s ability to inhibit melanin biosynthesis by targeting the MITF signaling pathway, establishing its potential as an innovative skin-lightening product. The study (2) by Alfredo Martínez-Gutiérrez et al. explored the combined effects of apigenin and phloretin on skin aging and hyperpigmentation. The research recommends this combination for the effective regulation of melanogenesis by inducing autophagy in melanocytes, which offers a promising approach for treating skin hyperpigmentation. Laziz Bouzidi et al. investigated the potential of blending *Astrocaryum* pulp oil and kernel fat to produce multifunctional cosmetic ingredients. The study (3) proposed the blend to achieve a rich assortment of bioactive compounds, texture, and physical properties that makes it suitable for various cosmetic applications. Laura Rubio et al. conducted a comprehensive analysis (4) of several essential oils and natural extracts, marking potential phytochemicals and allergens. These findings underscore the safety and efficacy parameters crucial for natural cosmetic formulations. Faten Mohamed Ibrahim et al. presented research (5) on a novel nanoemulgel formulation that incorporates lemon peel extract as a non-toxic, antimicrobial, and alcohol-free hand sanitizer. The formulation projected promising antimicrobial activity against bacterial and fungal attacks. The paper (6) by Ugnė Žlabienė et al. explored the potential of patchouli extract and allantoin-based anti-dandruff shampoo formulations. The study showed that this combination is able to improve the technological properties of the shampoo while potentially resolving dandruff concerns. Cloé Boira et al. investigated the potential of *Centella asiatica* extract to reduce the appearance of stretch marks in their paper (7). The findings demonstrated its ability to accelerate fibroblast proliferation and promote skin



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repair, suggesting its capacity as a natural treatment for stretch marks. Andrea Cavagnino et al. explored the use of adaptogenic plants, such as *Lactobacillus plantarum*, *Withania somnifera*, and *Terminalia ferdinandiana*, to support skin resilience. The study (8) suggested that these plant extracts can protect skin from environmental stressors and aid in skin regeneration. Mokgadi Ursula Makgobole et al. reviewed the traditional use of medicinal plants in West Africa for the treatment of skin diseases. The review (9) discussed the potential of these plant species as sources of bioactive compounds with antimicrobial and anti-inflammatory properties, which can be employed in cosmetic formulations. Sunehra Sayanhika et al. explored the potential of Asian Palmyra palm, which is the official tree of Tamil Nadu Government, as a cosmetic ingredient. This review (10) dissected the range of skin benefits from the plant's molecules, including antioxidant and antimicrobial properties. The bioactive compounds present in the different parts of the palmyra plant make it a promising ingredient for various cosmetic formulations.

In summary, this Special Issue provides an extensive overview of the recent research advancements in the field of plant-based cosmetics. The studies presented demonstrate the multidirectional potential of natural ingredients to address skincare concerns, offering safer and more sustainable alternatives to synthetic cosmetics. As research continues to explore the uncharted potential of plant-based molecules and materials, we anticipate more of these sophisticated and effectual cosmetic formulations in the near future.

Conflicts of Interest: The author declares no conflicts of interest.

List of Contributions

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