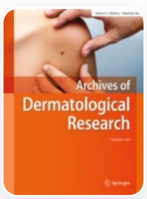
Mushrooms in modern cosmetics: unlocking anti-aging, antioxidant, and therapeutic potential

REVIEW Published: 09 March 2025

Volume 317, article number 542, (2025) Cite this article



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Abstract

Mushrooms have gained significant attention in the cosmetics industry due to their rich bioactive compounds with numerous skin benefits. This review explores the potential of various mushroom species as ingredients in cosmeceuticals, focusing on their anti-aging, anti-wrinkle, skin whitening, moisturizing, antioxidant, anti-inflammatory, and antimicrobial properties. Mushrooms such as *Ganoderma lucidum*, *Lentinula edodes*, *Pleurotus ostreatus*, and *Agaricus bisporus* have demonstrated the ability to inhibit key enzymes like elastase, tyrosinase, hyaluronidase, and collagenase, which play vital roles in skin aging and pigmentation. These bioactive compounds, including polysaccharides, phenolic acids, vitamins, and carotenoids, contribute to reduce wrinkles, improving skin hydration, enhancing elasticity, and providing protection from oxidative stress and UV damage. Furthermore, mushrooms have shown antimicrobial activities, making them effective against skin infections and inflammation. Mushrooms have become a popular ingredient in hair care products for their nourishing benefits, helping to promote healthy hair growth and protect against damage. As demand for natural, sustainable, and effective skincare alternatives rises, the incorporation of mushrooms into cosmetic formulations offers a promising solution. This review highlights the growing application of mushrooms in the development of innovative cosmeceuticals and emphasizes the need for further research to explore their full potential. Advancements in extraction techniques and the identification of new bioactive compounds are expected to enhance the efficacy of mushroom-based skincare products, making them an integral part of the global cosmetics market in the future.

Data availability

No datasets were generated or analysed during the current study.

Abbreviations

MMPs: Matrix metalloproteinases enzymes

HA: Hyaluronic acid

EXP: Exopolysaccharide

SOD: Superoxide dismutase

GPx: Glutathione PEROXIDASE

AOA: Antioxidant Activity

ROS: Reactive oxygen species

ABTS: 2,2'-Azinobis (3-ethylbenzothiazoline-6-sulfonic acid

DPPH: 2,2-Diphenyl-1-picrylhydrazyl

FRAP: Ferric reducing antioxidant power

TBARS: Thiobarbituric acid reactive substances

ERGO: Ergothioneine

TNF: Tumor necrosis influence

NF-B: Nuclear factor-B

COX: Cyclooxygenase

iNOS: Nitric oxide synthase

PGE2: Prostaglandin E2

NO: Nitric oxide

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Ethics declarations

Conflict of Interest

The authors declare no competing interests.

Additional information

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Cite this article

Rukhsar, S., Usman, M., Yousaf, N. *et al.* Mushrooms in modern cosmetics: unlocking anti-aging, antioxidant, and therapeutic potential. *Arch Dermatol Res* **317**, 542 (2025). https://doi.org/10.1007/s00403-025-04048-7

Received	Revised	Accepted
07 January 2025	08 February 2025	12 February 2025

Published
09 March 2025

DOI
https://doi.org/10.1007/s00403-025-04048-7

Keywords

- Anti-aging
- Antioxidant activity
- Mashrooms