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Role of Nanotechnology in the Development of Photoprotective Formulations

[Sonam Dwivedi](#) & [Iffat Zareen Ahmad](#)

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Abstract

Nanotechnology derives from the technology that entailed its designing, production, and application in the nanometer range. Incorporation of nanotechnology in the cosmetic formulation commences the thrust area of research. Nanosized cosmetic formulations offer increased UV protection, penetrate deep into the skin layer, and provide effective release of ingredients, with good solubility and stability. Many of them also exhibit UV protective, antioxidant, and antimicrobial activities. The magnificence of micellar nanoparticles has now become the latest fascinating nanotechnology in the international and local cosmetic market. The micellar nanoparticles effectively enhance the surface area and actively transport the bioactive compounds into the skin. Vesicular nanosystems such as liposome and niosomes are versatile in nature and are able to encapsulate bioactive compounds of different solubilities. Natural compounds with photoprotective activity have created interest in the area of cosmetic formulation since they reduce the oxidative stress, toxicity, and damage caused by radiation. Nanocosmetics can be found in a variety of products ranging from hair care to sunscreen to oral care. The information provided in this chapter about various photoprotection formulations serves as a guide for future research to meet the necessary standards in the cosmeceuticals and cosmetics industries.

Keywords

Nanoformulations **Photoprotection** **Free radicals**

Ultraviolet radiation **Nanocosmeceuticals** **Nanopharmaceuticals**

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Author information

Authors and Affiliations

Natural Products Laboratory, Department of Bioengineering and Biosciences, Integral University, Dasauli, Lucknow, Uttar Pradesh, India

Sonam Dwivedi & Iffat Zareen Ahmad

Corresponding author

Correspondence to [Iffat Zareen Ahmad](mailto:iffat.zareen@integraluniversity.ac.in).

Editor information

Editors and Affiliations

Department of Botany, MMV, Banaras Hindu University, Varanasi, Uttar Pradesh, India

Vinod K. Kannaujiya

**Center of Advanced Study in Botany, Banaras Hindu University, Varanasi,
Uttar Pradesh, India**

Rajeshwar P. Sinha

**Department of Biotechnology, S. S. Khanna Girls' Degree College,
Prayagraj, Uttar Pradesh, India**

Md. Akhlaqur Rahman

**Center of Biotechnology, University of Allahabad, Prayagraj, Uttar
Pradesh, India**

Shanthy Sundaram

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Shanthy Sundaram *Editors*

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 Springer

Editors

Vinod K. Kannaujiya
Department of Botany, MMV
Banaras Hindu University
Varanasi, Uttar Pradesh, India

Rajeshwar P. Sinha
Center of Advanced Study in Botany
Banaras Hindu University
Varanasi, Uttar Pradesh, India

Md. Akhlaqur Rahman
Department of Biotechnology
S. S. Khanna Girls' Degree College
Prayagraj, Uttar Pradesh, India

Shanthy Sundaram
Center of Biotechnology
University of Allahabad
Prayagraj, Uttar Pradesh, India

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