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Biocellulose mask as delivery system: Evaluation of quality, safety and effectiveness

Perugini Paola and Bleve Mariella

University of Pavia, Italy

Bacterial Cellulose (BC) has become of great interest in recent years as delivery system in several areas of application including food, drugs and cosmetics thanks to exclusive advantages such as: high biocompatibility, water holding capacity, good gas permeability. Several bioactive ingredients are currently loaded into bacterial cellulose masks. However, only a few studies have reported the effectiveness of such delivery systems. The novel Authors' approach lead to a protocol for checking quality, safety and efficacy of Bacterial Cellulose masks. Two non-destructive techniques, Near-Infrared Spectroscopy (NIR) and Multiple Light Scattering (MLS) were used to verify different parameters affecting the quality of masks over time. The effectiveness on skin parameters of three biocellulose masks with different cosmetic effects (anti-aging, lifting, and cell renewal) were evaluated through an "in vivo" study involved 69 healthy Caucasian female volunteers between 25 and 64 years old. In particular, skin moisturizing, skin color, skin viscoelastic properties, skin surface smoothness, wrinkle reduction, dermal homogeneity, and stratum corneum renewal were evaluated. Erythema Index values and TEWL values obtained during in vivo tests highlighted

the great tolerability of BC masks: skin's parameters were not altered upon continued use, no occlusive effect was reported, nor the skin barrier function has been affected. A significant decrease in skin roughness and wrinkle breadth, and an improvement in dermal homogeneity and firmness, were observed after two months of treatment with "anti-aging" masks. A significant improvement in skin firmness and elasticity was observed after one month of treatment with "lifting" masks. Furthermore, a one-month treatment with "cell renewal" masks promoted the production of new skin cells through a mild exfoliating action. This study highlights that biocellulose masks are safe and effective delivery systems to successfully release into the skin several types of active compounds exerting many beneficial effects.

Speaker Biography

Perugini Paola has completed her PhD in Pharmaceutical Chemistry and Technology from University of Pavia, Italy. She is professor at the University of Pavia and she is the Director of Second Degree Master in Cosmetological Sciences at the University of Pavia. She has over 200 publications that have been cited over 1730 times, and her publication H-index is 36 and has been serving as an editorial board member of reputed journals.

e: paola.perugini@unipv.it

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