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A plant protein-based nanoemulsion system for personal care products

Jeong Kee Kim¹ and Eunmi Kim²

¹Kyung Hee University, South Korea

²AMOREPACIFIC, South Korea

Statement of the Problem: A sustainable technology has to minimize chemical uses and harmful effect throughout the entire production process so that to produce environmentally friendly products. Biopolymers such as proteins and polysaccharides are alternative materials in the personal care industry. Owing to the low use of chemicals and less harmful effects to the environment after degradation or recycling, biopolymers offer greener solutions as compared to chemical synthetic materials.

Methodology & Theoretical Orientation: In this study, we designed a new nanoemulsion system without chemical synthetic surfactants. Only a plant protein and two kinds of polysaccharides were used for solubilization of phytochemicals. This system consists of 100% biodegradable materials and was developed by a self-assembled encapsulation mechanism. Synthetic surfactants, such as polyethylene glycols (PEGs), have been frequently used in a variety of

industries. However, several studies raised concerns about allergenic and liver toxicity of PEGs for the human body in pharmaceutical use. Along with sustainable properties, safety is another key issue for personal care product users. Therefore, the development of natural and nature-derived materials is one of the effective solutions for sustainable growth.

Conclusion & Significance: The new designed nanoemulsion system proposed in the present study can be applied in the production of cosmetic products with solubilization of phytochemicals including hydrolyzed ginseng saponin. In the future, the performance of this system can be compared to that of the conventional nanoemulsion system to show the sustainable effects of the former system. The newly-designed self-assemble nanoemulsion system proposed in the present study is a greener innovative cosmeceutical delivery system.

Biography

Jeong Kee Kim has his expertise in natural material efficacy and cosmetics material development. He is currently a PhD student and works as a researcher at Amorepacific Corporation at the same time. Also, his main area of interest is to develop sustainable cosmetics technology through green chemistry.

spirit92@dreamwiz.com