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Recycling of keratin resources to produce water stable, soluble and the smallest worldwide nano-keratin

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Keratin is a structural protein and considers as a key material in hair, nails, wool, feathers and the outer layer of human skin building up. Keratin has mostly studied for the use in cosmetics (hair care) products because it makes up 95% of hair structure. Nano-keratin is the result of a special manufacturing system that produces tiny particles. With this technology, tiny cracks in the hair can be sealed to bring the hair back to its optimum health. The smaller is the size of the nano-keratin, the greater is the success of the product in penetrating and filling small gaps of the hair. In a recent study, Xu et al., 2014 developed nano-keratin in a size of 70nm. Here, we have developed a new based chemical technique to create the world's smallest nano-size of the nano-keratin (3.03-4.41nm). Besides, in our

research, the synthesized nano-keratin particles showed particular properties such as solubility and stability in water, compatibility. This addresses one of the disadvantages of current products in the market that contains dangerous ingredients (formaldehyde). In our method, the principal steps of nano-keratin synthesis included solubilization, precipitation and self-folding, washing, and solubilizing the nano product at pH around 7. Transmission electron microscopy (TEM) showed that the shape of the produced nano-keratin was sub-spherical. We are expecting that the future of cosmetics and any other pharmaceutical products (drug delivery, ion and other nanoparticles stabilization) will be more efficient and safer products. Now, the keratin nanoparticle can be produced on a pilot scale.

Biography

Ramadan A Mohamed has completed his PhD at the age of 36 years from Gottfried Wilhelm Leibniz University, Hanover, Germany and Postdoctoral Studies from School of Microbiology, Assiut University, Egypt. He is one of the staff members of the Centre of Excellence (Biochemistry and molecular biology) of Faculty of Science, Assiut University. He has published more than 13 papers in reputed journals. He has Patented the melanoprotein the key protein in fungal pathogenicity of apple scab disease (EP2487237A1; 2012.08.15; Google), DE1 0 20110 00701A 1 2012.08.16) and, in the meantime, he is involved in a project for the future of nano-keratin.

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