Synopsis of Original Research Paper

A novel bio–based material with moisturizing function and antimicrobial activity

Shun Sato

Research Institute for Sustainable Chemistry, National Institute of Advanced Industrial Science and Technology (AIST)

Skin care products are now widely used not only by women but also by men of all ages. They require skin-care products with versatile effects like moisturizing, anti-aging, and antimicrobial functions. Also, due to growing consumers' demands for safer chemical materials, skin care products made from natural and/or bio-based materials are preferred. Thus, novel bio-based materials with moisturizing function and antimicrobial activity are necessary for the application to cosmetic products. In this study, characteristics of glyceric acid, which is a phytochemical and can be mass produced from glycerol by acetic acid bacterial fermentation, were investigated. It was observed that water-retention ability of glyceric acid sodium salt in agar gels were comparable to that of glycerol, which is a practical skin hydration reagent. In addition, glyceric acid sodium salt showed no effect on the recovery of sodium dodecyl sulfate-treated human skin cells by using three-dimensional cultured human skin model. It was also found that glyceric acid as well as other short chain fatty acids like acetic, propionic, and lactic acids inhibited growth of *Propionibacterium acnes*, which is one of normal skin bacteria and causes inflammatory acne by their overgrowth, on agar medium. These results suggest that glyceric acid possesses a potential in use as a cosmetic ingredient with moisturizing function and antimicrobial effect.