

Synthesis of phospholipid biosurfactants from vegetable oil sources and characterization of their interfacial properties

이수민, 임종주[†], 김도원, 손종석, 이주연, 김병조¹, 최규용¹, 이현신¹
동국대학교; ¹AK ChemTech

Interest in biosurfactants has been steadily increasing in recent years due to their diversity, environmentally friendly nature such as nontoxicity and excellent biodegradability, possibility of large-scale production, selectivity, performance under extreme conditions, and potential applications in environmental protection [1]. In this study, phospholipid biosurfactants were synthesized for cosmetics and household product applications. Economic and environmentally friendly phospholipid biosurfactants with excellent biodegradable characteristics were derived from renewable vegetable oils such as sunflower oil, rapeseed oil, cottonseed oil, palm oil, and coconut oil. The structure of the resulting products was elucidated by FT-IR, ¹H NMR, and ¹³C NMR spectroscopies and interfacial characteristics of the synthesized surfactant including critical micelle concentration, surface tension, interfacial tension, wetting property, emulsification activity, viscosity and foam property have been examined.

[1] Zalak N. Patel and N. Saraswathy, World Journal of Pharmaceutical research, Volume 3, Issue 2, 1968-1977, 2014.