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Effects of HLB value on oil-in-water emulsions : droplet size, rheological behavior, zeta-potential, and creaming index

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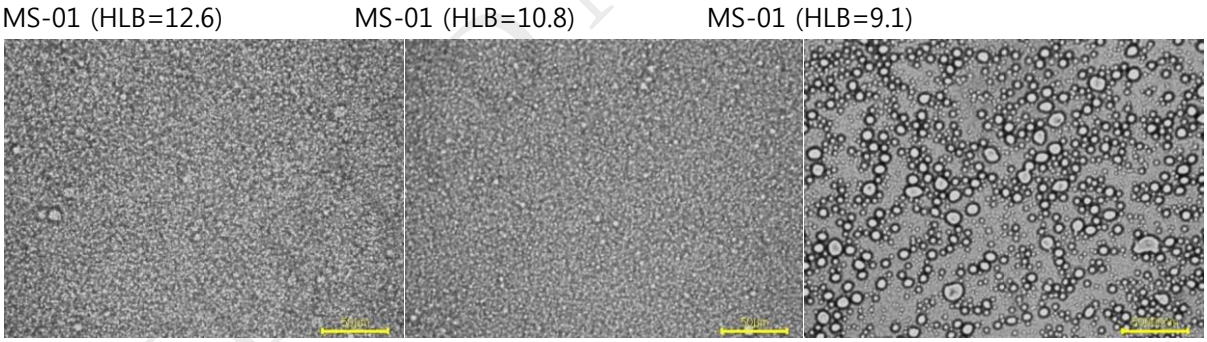
Graphical Abstract

The optical microscopy images show that the droplet size in O/W emulsions is dependent on HLB value after 70day. The emulsions prepared with MS-01 (HLB=10.8) show smaller droplet size and higher uniformity of droplet size than the other emulsions.



Abstract

Using mixed nonionic surfactants Span/Tween, we investigated the effects of HLB value on the O/W emulsion stability and rheological behaviors. In this study, MS-01(Span 60 & Tween 60) and MS-02(Span 80 & Tween 80) was used as mixed nonionic surfactants. We considered required HLB value 10.85 and selected corresponding HLB value range 8 to 13. The droplet size distributions, droplet morphology, rheological properties, zeta-potential and creaming index of the emulsion samples were obtained to understand the mechanism and interaction of droplets in O/W emulsion. The results indicated that