

Functional properties of biopolymer-based films modified with surfactants: a brief review

ABSTRACT

An increase of environmental awareness recently has increased the interest of researchers in using of biopolymer-based films. The films have been prepared extensively by utilizing starch, carboxymethyl cellulose, chitosan, protein, gelatin, carrageenan, alginate, pectin, guar gum and pullulan. They are typically modified with surface-active agents (surfactants) such as glycerol monostearate, sucrose ester, sodium stearyl lactate, sodium dodecyl sulfate, ethyl lauroyl arginate HCl, Span 20 to 80, Tween-20 to 80 and soy lecithin for improving the functional properties of the films. In this brief review, two types of biopolymer-based films that prepared through casting method were categorized, specifically solution- and emulsion-based films. The four types of surfactants, namely non-ionic, anionic, cationic and amphoteric surfactants that are regularly used to modify biopolymer-based films are also described. The functional properties of the films modified with different types of surfactants are briefly reviewed. This study enhances the attraction of researchers in biopolymer-based films and the improvement of new concepts in this niche area.

Keyword: Surfactant; Biopolymer; Film; Functional properties