Abstract: Cellulose nanocrystals (CNCs) – incorporated emulsion coating with improved moisture barrier, wettability and surface adhesion onto fruit surfaces were studied for controlling postharvest physiological activity and enhancing storability of bananas during ambient storage. In this study, CNCs, isolated from defatted rice bran (DRB), were synergistic to poly(glycerol-succinate)oligoester (PG1.5SF0.05) reticulation inside the targeted water-based coating formulation. The emulsion was successfully prepared using CNCs, rice bran oil (RBO) and PG1.5SF0.05. The emulsion coating were shown to delay the ethylene biosynthesis pathway and reduce CO₂ production by minimizing weight loss, total soluble solid and maintaining firmness, starch degradation and titratable acidity of bananas. The result provides the scientific insight of CNCs-based coating as a simple and effective postharvest technology for enhancing the storability of bananas.

Keyword: Cellulose nanocrystals; Emulsion; Bananas; Postharvest storage; Storability