Development of green banana (Musa paradisiaca) as potential food packaging films and coatings

ABSTRACT

The aim of this study was to develop biodegradable packaging films based on a unripe green banana (Musa paradisiaca L.) with different plasticizers; glycerol, polyethylene glycol (PEG) and sorbitol at various concentrations (10-50%). Banana films were produced by using casting method and physical properties of these films were determined. Banana films with 10% of PEG showed the lowest water solubility ($P \leq 0.05$) followed by films with glycerol and sorbitol. Banana films with 40% plasticizers possessed the lowest water vapour permeability (WVP) whereas films with 30% glycerol exhibited higher values of tensile strength ($P \leq 0.05$) compared to films with PEG and sorbitol. However, types of plasticizers did not influence the thickness of the films. Also, used of higher concentrations of plasticizers had increased the solubility values. These findings reveal that concentrations and types of plasticizers have significant roles to provide banana film or coating with good physical properties.

Keyword: Banana; Biodegradable films; Packaging