

Chemical, physical, and barrier properties of edible film from flaxseed mucilage

ABSTRACT

Chemical, physical, and barrier properties of flaxseed mucilage-based films were investigated to determine the appropriate applications for coating or packaging of food or bioproducts. The film samples were formed via casting with the addition of glycerol as a plasticizer up to a maximum of 5 wt.%. Fourier transform infrared (FTIR) spectra showed an increase of intensity in the –OH stretching vibration region and the appearance of a new peak at 2883.1 cm⁻¹ in the plasticized film samples. These changes may indicate possible interactions between the mucilage and glycerol. With increasing glycerol concentration, the water activity decreased, while the moisture content and water solubility increased. With regard to barrier properties, the water vapour permeability (WVP) and oxygen permeability (OP) notably increased with increasing glycerol content. With these high WVP and OP values, the films can be potentially extended for coating or packaging fresh produce.

Keyword: Flaxseed; Mucilage; Edible film; Glycerol; Plasticizer; Permeability