Abstract: Blends of corn starch with poly(ethylene-vinyl alcohol) copolymer (SEVA-C) were aged up to 30 days and the degradation solutions were analysed by several techniques. The changes in the mechanical properties as a function of the immersion time can be characterised by an increase in the ductility and a decrease in the stiffness. Weight loss and water uptake were also evaluated. The morphology and the water absorption capacity of SEVA-C were followed by scanning electron microscopy (SEM) and thermogravimetric analysis (TGA), respectively. The degradation solutions were monitored with anionic chromatography (HPAE-PAD), colorimetric methods and Fourier transformed infra-red spectrophotometry (FT-IR). In the first days of immersion, the released of almost the plasticisers added to the material formulation, mainly glycerol, was the main physical phenomenon. The total polysaccharides increased in solution as a function of immersion time, as a consequence of the chemical degradation. SEVA-C micrographs presented an increase in the surface porosity as a function of immersion time.

Keywords: biodegradable polymer; in-vitro degradation; biomedical; starch/poly(ethylene-vinyl alcohol)