Abstract

Today to eliminate environment pollution caused by solid wastes, their conversion into valuable materials such as composites and polymer materials, presents a promising way which continues to develop. The main purpose of this work is to obtain a new epoxy based composite material reinforced with fibrous biopolymer, recovered from dechromed collagen of leather wastes. Several mixtures of collagen fiber-epoxy resin were prepared with different fiber ratios of 5 %, 10 % and 15 %. Different analyzes such as viscosimetric behavior of the prepared mixtures, the physico-mechanical properties and thermal properties such as glass transition temperature (Tg), thermo-gravimetric analysis (TGA) of the obtained composite material have been performed. The chemical structure of the obtained composite has been analyzed by Fourier transform infrared spectroscopy (FTIR). The results showed that collagen fiber has a remarkable compatibility and affinity with the epoxy matrix. The incorporation of collagen fibers in the epoxy resin allowed us to develop a composite material with interesting physico-mechanical and thermal properties.