

## Abstract

This paper presents an experimental study of mechanical characterization of composite materials, reinforced with short vegetable fibers and obtained by a new implementation of their extraction from Alfa bundles. From many previous studies on the chemical treatments of these fibers, to improve the interfacial adhesion; an alkaline chemical treatment optimization under different durations was applied to the fibers and a fatigue behavior analysis was conducted under an acoustic control of polypropylene matrix samples with different volume fiber fractions. An SEM observation of the fibers morphology and of the interfacial characteristics of the material during the test before and after the optimized alkaline treatment showed the impact of this treatment by the important increase of the Young module from 28.67% to 132.22% with respect to the virgin PP and of the traction resistance from 11.34% to 30.14% with respect to the non treated fibers for 30%