

Abstract

In this research, effect of chemical treatment of lignocellulose fiber on the physical and mechanical properties of banana fiber / polypropylene composite was investigated. Chemical treatment of banana fiber in 2 levels: without treatment and treated with sodium hypochlorite and also percentage of using banana fiber were in 3 levels: 40, 50 and 60 percent. Banana fiber were put into a sodium hypochlorite alkaline solution at a concentration of 50 percent and for 4 hours. From WPG test was used to ensure of chemical treatment. Materials with a experimental mixer were mixed and experimental board were made by a hot press machine. Physical tests were water absorption and thickness swelling for 2 and 24 hours and mechanical tests were MOR, MOE, tensile strength and tensile modulus. The result showed that due to chemical treatment, mechanical properties were improved while water absorption and thickness swelling were decreased. With increasing of percentage of banana fiber, mechanical properties were decreased while water absorption and thickness swelling were increased.

Key word: fiber plastic composite, banana fiber, Chemical treatment, physical mechanical properties,



University of Zabol
Graduate school
Faculty of Natural resource
Wood Science and Technology Department

**The Thesis Submitted for the Degree of M.Sc (In wood
Composite products)**

**Effect of chemical treatment of
lignocellulosic fibers on the physical and
mechanical properties of banana
fiber/polypropylene composite**

Supervisor:

Dr. B. Nosrati Sheshkal
Dr. S. R. Farokh payam

Advisors:

Dr. M. Dahmardeh Ghalehno

By:

M. Poodineh Zaboli

September 2019