

University of Zabol

Management of supplementary education Department of natural resources Educational Department of Wood and Paper Science and Industries Dissertation for obtaining a doctorate degree in the field of lignocellulosic composites Tittle: The possibility of producing medium density fiber board resistant to various consumption conditions and termite infestation with

environmentally friendly materials

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summer 2023

Abstract

The use of environmentally friendly materials is inevitable, especially for fiberboard, which has wide and varied uses. Also, wooden panels inside or outside the building in all parts of Iran are susceptible to termite attacks, and the protection of these wooden panels is essential. The purpose of this research is to produce medium density fiber board with multi-purpose capability, which means playing the role of protection along with advantages such as increasing resistance and reducing formaldehyde emission. In this research, waste fibers from herbal medicine factories, which are widely available, will be mixed with industrial fibers to make medium density fiberboard. The glue used will be ureaformaldehyde, which will be modified with two types of traditional stabilizing compounds (walnut leaf extract, alum, tragacanth gum) and (oak fruit extract, Copper sulfate, zedo gum) The construction of this type of fiber board can be resistant to various usage conditions. Finally, the efficiency of the manufactured fiber board was investigated and the most effective treatment according to statistical analysis and grouping of Duncan and LSD showed that in the treatments where the ratio of mixing industrial fibers to residual licorice root fibers is 70 to 30 and urea formaldehyde glue with traditional stabilizers in Type D (oak fruit extract, blueberry extract, mountain almond gum) and E type (walnut leaf extract, alum, kathira gum) have been modified, the least fungal decay, termite destruction, ureaformaldehyde emission to (more than% 50) and water absorption (in the amount of %20) and% 50 weight loss in fire resistance compared to the control sample (100 factory industrial fibers) were observed.

Keywords: Medium density fiber board, Licorice root residue, Traditional fixing