Environmental Engineering and Management Journal

March 2012, Vol.11, No. 3, 651-659
http://omicron.ch.tuiasi.ro/EEMJ/

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ENVIRONMENTALLY FRIENDLY VEGETAL FIBER BASED MATERIALS

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Abstract

The current work analyses the potential usage of vegetal fibers environmentally sound based materials. The paper approaches the main applications of vegetal fiber sustainable integration into products. The origin of vegetal fibers and the degree of processing affect their chemical composition and furthermore its performance in future application. Some aspects on the structure and chemical composition of vegetal fibers are presented. The usage of vegetal fibers for manufacturing on paper and fiber containing composites is considered. Paper is the most important fiber based material and non woods as sustainable virgin fiber sources are discussed.
Besides papermaking, vegetal fibers are potentially usable as reinforcements in cement and gypsum fiber composites. Some considerations regarding manufacturing processes and factors affecting mechanical properties of composites are presented. Other usages of vegetal fiber involve the manufacturing of polymer matrix composites. The chemical ways to improve interfacial linking between vegetal fibers and polymeric matrix are shortly underlined. Aspects regarding the environmental impact and life cycle assessment of the vegetal fiber based materials were taken into consideration.

Key words: cellulose, composites, paper, sustainability, vegetal fiber

Received: September, 2011; Revised final: February, 2012; Accepted: March, 2012

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