Project Title: New Lightweight and Nanotechnology Enhanced Bio-composites from Lignocellulosic Materials

Contract No: 12CHN322-FIBRACOM

Partners: **CHIMAR HELLAS SA, Aristotle University Thessaloniki (Chemistry and Physics Departments), Center for Renewable Energy Sources and Saving, Institute of Bast Fiber Crops, Dalian Polytechnic University, Liaoyang Yimeng Carpet Manufacturing Co.**

Duration: 01/04/2013 - 30/09/2015

Abstract:

The present project is a cooperation between Greece and China for the development of new lightweight, nanotechnology enhanced bio-composites for multiple applications. The latter refer to automotive interior substrates, construction and infrastructures, window pillars, package tray or trunk liner, and particleboards with wide application in furniture and house interior constructions. The developed products will be of higher performance as compared to their counterparts already available in the market.

The particleboards will be prepared from Chinese varieties of kenaf, hemp, rami and jute crops and polymer resins synthesized from renewable natural monomers (e.g. soy protein, and cashew nut shell liquid). The composites will be prepared with epoxy resins synthesized by triglycerides. Both types of composites will be reinforced by various nanoadditives such as nanocellulose, graphen & MWCNTs in order to acquire improved properties. Target of the project for the resulting composites and respective end products is also to be less harmful and friendlier to people and the environment.

The successful implementation of the project can be guaranteed by the close collaboration of the Greek and Chinese partners, who have important and complementary expertise in the field. The Chinese partners will provide lignocellulosic fibres, shieves as well as seeds of high quality whose cultivation will be tested for first time in Europe (Greece) by the Greek Center for Renewable Energy Sources. CHIMAR (project coordinator) will develop particleboards from kenaf, hemp and jute shieves and thermosetting bio-based resins enhanced with (nano)additives, while the University of Thessaloniki will prepare (nano)composites based on epoxy bio-resins. The new products will be evaluated by the partners of both nationalities.

The project is co-funded by the National Strategic Reference Framework (NSRF) Programme, the European Regional Development Fund and the participating enterprises.

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