



Project co-funded by EUROPEAN UNION through the European Regional Development Fund
Sectoral Operational Programme "Increase of Economic Competitiveness"

"Investing for your future"

PRIORITY AXIS 2 - Research, Technological Development and Innovation for Competitiveness

Operation 2.1.2: "Complex research projects fostering the participation of high-level international experts"

"Bast Plants - Renewable Strategic Resources for European Economy"

Contract No 210/2010

Project value: 6.842.915 RON

Completion date: 20th July 2013

Contribution of European Union: 4.979.998,34 RON

Romanian Government contribution value: 1.019.999,66 RON

Project beneficiary: "AUREL VLAICU" UNIVERSITY - Arad, Romania
TECHNICAL AND NATURAL SCIENCES
RESEARCH-DEVELOPMENT-INNOVATION INSTITUTE of UAV

BASTEURES

The project objectives

The **main objective** of the project is the complete capitalization of the bast plants (flax, hemp, Spanish junceum) in order to obtain advanced materials, auxiliary raw materials and energetic products by developing and applying new and competitive processing/extraction technologies for both, primary and secondary products of these plants, in a sustainable economical development context.

These renewable raw materials resources are studied by researchers for their huge potential to offer valuable economical solutions in many sectors.

For transforming the bast plants (flax, hemp, Spanish junceum) – **in advanced materials** (advanced textiles fabrics, paper, bio-composites), **auxiliary raw materials** for food industry and pharmacy (oils for functional food, agro-fine-chemical are natural sources for extracts with anticancer, antibacterial, immunoglobulin level controlling, nutritive, etc. properties included in production of drugs, cosmetics, etc., **bioremediation agents, etc.**) **and energetic products** (bio-fuel), performed technologies based on the novel achievements from different fields (chemistry, biotechnology, applied physics, materials, textiles, textiles chemistry, wood chemistry, paper industry, etc.) will be developed in this project for the complete capitalization of these resources in a closed circle.

In order to attend the major objective of the programme – „to enhance the Romanian enterprises' productivity and to reduce the gaps to the average productivity at the EU level" as well as increasing and diversifying the Romanian products and innovative services, the team will solve through this project, a broad and complex range of economical problems (new sources of raw materials for sensitive sectors, paper from non-wood pulp, biodegradable composites for civil constructions, auxiliary raw materials for functional food, pharmaceuticals, cosmetics, and energetic products as bio-fuels, etc.) by offering different solutions with direct economical applicability.

The technological solutions proposed in this project will be developed for each plant (according with the usage potential and the physical-chemical and structural characteristics of these plants) and in the end of the project, based on a feasibility study, a selection of the most promising and suitable technology for practical application (from economical efficiency point of view) will be done for each according with their maximal capitalization potential.

Through this project, new applications of the existing patents (relevant for the theme) will be developed and new patents applications for the proposed technologies will be applied. For all 6 proposed technologies, which includes certificates about the performances of newly products/auxiliary raw materials, the documentation for obtaining industrial property rights will be processed. Through project publicity the following aspects are envisaged:

Informing the large public about the project benefits upon the economy development:

Informing the large public about the obtained project results:

Informing the public about the project aimed to attract new services for new applications from economic sector with relevance on the proposed theme:

The proposed research theme contributes to achieving the competition objectives through: solving a series of economic problems offering competitive technologies for obtaining raw/auxiliary materials for innovative and energetic products from renewable resources. The project through its objectives contributes to achieving the specific objectives of the competition because it's able to generate applicable results in economy and leads to increasing the quality/diversifying the innovative services offers.