

GEOBIOTEC Agro-Forestry Group (AF)

9.1.3 - Research Group Description and Achievements for 2008-2012

A- Members of the Group

Full members

Fernando Lidon (IR)
José Cochicho Ramalho
Fernando Reboredo

PhD Students

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Colaborators

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Mariana Augusta Casadinho Regato, Inst. Politécnico Beja (J54269764V68)
Alexandra Telo da Costa Tomaz, Inst. Politécnico Beja (J528721205B7)
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Maria Isabel Fernandes Cardoso Patanita, IP Beja (J031182F7H6V)
Vânia Sofia Santos Ribeiro, Inv. FCT-UNL (J524756LC01E)

B - Organizational structure of the Agro-Forestry research Group

The Agro-Forestry research Group includes three different sub-groups, which are not organized as structured entities, performing research work in the domain of the Physiology, Biochemistry, Genomic and Vegetal Biotechnology, directed mainly to industrial purposes.

The different Group members are spread by three Institutions, such as, the Tropical Scientific Research Institute, the National Institute of Agrarian and Veterinarian Research and the Faculty of Sciences and Technology of the New University of Lisbon.

The synergies created by the different sub-groups and their Researchers had allowed to win several National and International Projects with high budgets, namely:

PRODER Project nº PA 43374, entitled “Se rice – Biofortified rice with selenium” with the total amount of 518,169€

PRODER Project nº PA 24060, entitled “Biofortified apples with calcium” with the total amount of 749,800€

Project PTDC/AGR-PRO/3386/2012 funded by the Foundation for the Science and Technology entitled “Implications of environmental changes of the CO₂ levels and temperature on the quality of plant coffee grains -*Coffea* spp.” with the total amount of 158,904€

Project PTDC/AGR-FOR/4218/2012, funded by the Foundation for the Science and Technology entitled “SymbSaltStress - A systems approach to understand salt stress tolerance in *Casuarina glauca* and its relationship with symbiotic nitrogen fixation” with a total budget of the project – 175512 €.

[Project PTDC/AGR-ALI/118477/2010, funded by the Foundation for the Science and Technology entitled “SafeFruit - *Aureobasidium pullulans*, a biofungicide for the control of postharvest decay in pears: insights into its action mechanisms”; with a total budget of the project – 93,411.67€

The development potential of the Agro-Forestry Group is huge, as well as, the challenges of the Agro-forestry industry. In this context, the search of partnerships by the Industries is increasing and at the present approximately 20 cooperation agreements were celebrated with the Group. Furthermore, enterprises are open to receive students in order they acquire new skills and capabilities.

Despite the dispersion of the main Research groups which also includes the necessity of field experimental work, the great commitment of all the members, has been helpful in maintaining cohesion and high levels of productivity.

C - Goals of the Agro-Forestry research Group

Major goals

1. To promote and strength the cooperation with the Portuguese industrial tissue in the Agro-forestry field, throughout strategic partnerships.
2. To form highly qualified technical experts in order to answer the current tendencies of the modern agriculture, so-called “Precision Agriculture”, and market demands.
3. To direct the research to the resolution of precise problems in the Agro-forestry industry, or innovate in order that it become more competitive at the global scale.
4. To create in Portugal a research of excellence in the Agro-forestry field, being the GeoBioTec pole in the New University of Lisbon the main trigger of that development.
5. To strength the cooperation with other European Universities which confirmed their commitment to consolidate the knowledge of our Group.

Specific goals

The specific goals of the work developed so far by the elements of the Agro-Forestry Group are the following:

- 1) To study the biofortification of wheat in iron and zinc.
- 2) To study the biofortification of rice in selenium.
- 3) To assess the biological control in fruits from orchards.
- 4) To assess the phytoremediation capabilities of *Eucalyptus* spp (growing in heavy-metal contaminated media) and symbiotic salt stress (in *Casuarina glauca*).
- 5) To assess the interaction of climate changes (temperature and CO₂) in plants
- 6) To describe the evolution of the flora since the Miocene, with emphasis on changes in the forest cover.

In the case of the rice biofortification and biological control of fruits from orchards the work in progress is in close collaboration with enterprises of the Food Sector, while in the case of the wheat the study is additionally performed at a broad scale such as European Network COST Action FA 0905 entitled “Mineral improved crop production for healthy food and feed”. Furthermore, the research on climate changes is linked to the Cost Action FA 0906.