

Agrifood technologies

A note by

Régina Lago

“ **THE FIRST GROUP** of Brazilian researchers arrived in 2002 as explorers of a new life in Montpellier. Two years later, a guide called ‘*Comment arriver, séjourner et repartir de Montpellier*’ was written and certainly helped other Brazilian scientists. Becoming a member of a Labex team is an important change of life. Indeed, we are senior scientists who already have families and careers. It is no longer a question of spirit of adventure, of being fed up or irreverence or even of a small measure of juvenile irresponsibility. We have much to gain, but we also leave much behind.

Each of us has a different understanding of the role of a Labex researcher. The establishment of the Labex in France has meant scouting activities aiming at a more intense, effective dialogue with other players at Embrapa. The strategy was that of writing notes and technical reports on new knowledge found at conferences, lectures, etc., and circulating it in a network in Brazil. Our correspondents were R&D managers or research scientists. Discussion was set up but reactions were not always up to the standard of the actions. However, the information was always read and analysed.

From Agropolis International thematic directory n° 10 - "A model laboratory without walls: the Brazilian Labex" (March 2010 - 26 p.)

The Brazilian scientist hosted

Regina Lago (Embrapa) stayed for nearly three years at the IATE joint research unit and, more particularly, at the CIRAD Amis department's Laboratoire de Lipotechnie (October 2002-October 2005) to identify new plant enzyme sources isolated from Brazilian biomass (development of a process for extracting ricin lipase) and to process ricin for the production of lipid derivatives of strong nutritional interest.

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The host laboratory

**IATE joint research unit
Ingénierie des Agropolymères et
Technologies Émergentes**

(Montpellier SupAgro/INRA/UM2/CIRAD)

70 scientific and technical personnel

Director: **Stéphane Guilbert,**

guilbert@supagro.inra.fr

<http://umr-iate.cirad.fr>

Scientific correspondents: **Stéphane Guilbert,**
guilbert@supagro.inra.fr & **Pierre Villeneuve,**
pierre.villeneuve@cirad.fr

The choice of a theme for selecting a researcher must take into account the relevance and position of the theme at the frontier of knowledge and the existing or growing critical mass at Embrapa and of the Brazilian research system. The researcher's work thus has more chance of success, which does not mean that he or she does not need to be proactive. The International Relations management and the Scientific management thus have a role to play. Labex scientists must contribute to developing scientific relations with Europe.

As my field was oils and fats technology, Jean Graille (Amis Department, CIRAD) was my French correspondent. He retired a month later. Our strategy resulted in contacts with the IATE joint research unit (Montpellier SupAgro/INRA/CIRAD/Montpellier University 2), of which Stéphane Guilbert is now the director. The laboratories and the pilot plant set up still house the CIRAD Fats Technology Laboratory. We have also provided support for a CAPES-COFECUB* project managed in Brazil by the Embrapa Agricultural Instrumentation Centre.

We worked on the castor-oil plant, *Ricinus communis*, that became a star plant in Brazil a year later thanks to its agro-energy potential. The results led to publications even after my return to Brazil. A student at the Federal University in Rio de Janeiro worked on the project for six months and a patent was applied for. A doctoral student at Universidade Estadual de Campinas received training with the 'lipids' team and at the Institut des Membranes in Montpellier.

The centre did not have sufficient weight in oils and fats at the time and the consequences of my stay were not significant. On my return to Brazil, I worked more on international relations and was then appointed as director of the Embrapa Food Technology Centre on 1 April 2008.

I have kept up links with the IATE team. We presented a joint project at the *Conselho Nacional de Desenvolvimento Científico e Tecnológico*. I was invited to Paris by the Association Française pour l'Étude des Corps Gras to give a talk on castor-oil and jatropha as part of the association's annual 'Chevreul' day.

The future recruitment of two more researchers in oils and fats will provide scope for joint projects and stronger relations with CIRAD and other French teams in the sector. ”

Regina Lago (Embrapa, Brazil)

* CAPES: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Ministry of Education / COFECUB: Comitê Francês de Avaliação da Cooperação Universitária com o Brasil

A note by

Heloisa Filgueiras

“ **MY ARRIVAL** in June 2005 to replace Régina Lago and continue the work conducted in agrifood technologies enabled Labex Europe to have its first experience of the posting of a scientist outside Montpellier at the *Sécurité et qualité des produits d'origine végétale* joint research unit (INRA/ Université d'Avignon et des Pays de Vaucluse). The research project was then focused on the interface between foodstuffs *in natura* and processed foodstuffs and, more specifically, on the possible alternatives to chemical methods for the conservation of the quality of lightly processed plants. For this, different types of abiotic stresses were applied in a controlled manner to monitor metabolic processes first to delay enzymatic browning and senescence and second to increase the levels of functional compounds considered as being favourable.

Internal reorganisation of Inra leading to the changing of the priorities of the Avignon centre resulted in the moving of Labex activities in agrifood technologies to the *Laboratoire de physiologie des fruits et légumes* at the University of Avignon (UAPV). The initial line of research was then strengthened, with more rigorous requirements as regards the presence of residues and the running of a study of the use of chlorine in the food industry.

Initially, the UAPV team did not know Embrapa well and had little international experience in spite of its high scientific level. The partnership also coincided with the launching the *Pôle Européen d'Innovation Fruits et Légumes* (European Innovation Cluster for Fruits and Vegetables) and the halting of all of INRA's research on vegetables *in natura* (at least at the Avignon centre).

The Brazilian scientist hosted

Heloisa Filgueiras (Embrapa) spent three years (November 2005 – July 2008) with the 'Fruit Physiology' team *Sécurité et qualité des produits d'origine végétale* joint research unit (INRA/UAPV) and then with the same team at the *Laboratoire de Physiologie des Fruits et Légumes* (UAPV) to study possible alternatives to chemical methods for conservation of the quality of little-processed plants.

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The host laboratories

Sécurité et qualité des produits d'origine végétale (Plant product safety and quality) research unit
(INRA/UAPV)

49 scientific and technical staff
Director: **Christophe Nguyen-The**,
christophe.nguyenthe@avignon.inra.fr

Scientific correspondent:
Patrick Varoquaux (retired)

Laboratoire de Physiologie des Fruits et Légumes (Fruit and vegetable physiology laboratory)
(UAPV)

6 scientific and technical staff
Director: **Huguette Sallanon**,
huguette.sallanon@univ-avignon.fr

Scientific correspondent: Huguette Sallanon



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In spite of this special context, the fact that Embrapa was present enabled UAPV to strengthen its image as a research institution, thus giving it the possibility of closer relations with the agricultural institutions in Montpellier—and more specifically with CIRAD through the Qualisud joint research unit. Its partnership with *Université Blaise Pascal* (Clermont-Ferrand, France) was also strengthened. The project made it possible to develop relations with two Dutch institutions, Radboud University (Nijmegen) and Wageningen University and Research Centre (WUR) and, through the latter, with the European laboratory *LaserLab Europe* (Milan, Italy).

In addition, five Brazilian scientists (from the Embrapa agricultural instrumentation and food industry centres, São Paulo State University, Jaboticabal, and Ceará Federal University) were invited by UAPV to install in its Fruit and Vegetable Physiology Laboratory the methods and technologies developed and/or adapted in Brazil.

Institutional relations have been maintained with several Embrapa centres and Brazilian universities since my departure. The approval of a new project on the use of Brazilian tropical fruits (CAPES/WUR programme) means that the work conducted by researchers at Embrapa and the various Brazilian and European universities can continue until 2010 (Fluminense Federal University, Paraíba Federal University, two laboratories at WUR, the LaserLab European platform).

Within the framework of bilateral cooperation between Embrapa and France, Labex Europe has enabled UAPV to join the Franco-Brazilian doctoral school and draw up the agreements required for the joint supervision of theses. The partnership activities of Embrapa and CIRAD initiated by the first Labex team have been continued by a post-doctoral position and a number of visits by researchers from Embrapa and Brazilian partner institutions.

I also participated in the UAPV master's degree and doctorate in the management of produce quality and several steering committees for doctoral students.

Heloisa Filgueiras (Embrapa, Brazil)