

## **ANNEX 2.3**

### **EULAFF’s Symposium “Biodiversity and IPRs: building a new functional food chain”**

#### **Summary Report**

Date: Tuesday, October 23<sup>rd</sup>, 2007  
Time: 15:00 – 18:00 h  
Venue: Hotel Sheraton, Viña del Mar, Chile  
Speakers: Alan B. Bennett, Department of Plant Sciences, UC–Davis, USA  
Amelia Díaz Barroso, IMPI-Instituto Mexicano de Propiedad Intelectual, México  
Silvia Salazar, PROINNOVA, San José, Costa Rica  
Daniel Ramón Vidal, BIOPOLIS, S.L., Valencia, Spain  
José Luis Solleiro, UNAM-CamBioTec, Mexico  
William Roca, CIP-Centro Internacional de la Papa, Peru  
Javier Verástegui, BioEuroLatina, Spain  
Christian Suojanen, EFB-European Federation of Biotechnology, Spain  
Moderator: Francisco Ferrandiz, Director of SEBIOT and BioEuroLatina, Spain

1. Francisco Ferrandiz, as Moderator of the symposium, made a brief introduction pondering the importance of functional food for the humanity, and for developing countries, as it create opportunities for economic development. He also highlighted some facts and points of view:
  - The UN Declaration on the Rights of Indigenous People was approved by 13 countries in Tiwanaku, La Paz (Bolivia) in September 2007, with the support of Evo Morales and Rigoberta Menchu, distinguished fighters for the native people rights.
  - A number of questions arise in relation to functional food, ethics and safety, following the new European legislation on health and nutrition. For instance, who should decide on the standards of application? A new body, EFSA (European Food Safety Authority) has been created to take decisions, including the banning of some recommendations on health and protection. Regulations are indeed benefiting some big transnational companies that behave legally, but that are suffocating the efforts of less developed countries to innovate and to access global markets.
  - Society has recently moved from the demand of “light” food (reduced unhealthy compounds) to new food products rich in healthy compounds (rich in omega 3, 6, calcium, fibres, etc). It is important to foresee the arrival of pharma-food products, such as probiotics (containing non-digestible elements, but which stimulate secretions and improve the gastro-intestinal mucose functions), as well as to the symbiotics (containing, for instance, oligosacharides). Thus, modern society has created “functional food orchards” and new bio-factories of food products.
2. This report summarize some of the main topics addressed by speaker, and the substance of the interventions at the public discussion, which was very intense and arised a number of questions and suggestions.
3. Alan Bennett focused on the 2<sup>nd</sup> and 3<sup>rd</sup> waves on plant biotechnology innovation: quality and nutritional traits, and plants as factories. Can biotech deliver quality/functional food traits? The answer is yes as it is being proved by the development of golden rice, production of omega 3-6 in plants, improved potato with better storage and processing features based on native potato genes.

Estimated 75% of processed foods have genetically engineered ingredients. A recent study finds a steady growth in new trait discovery, but a drastic contraction in new product development in agri-biotech: from 559 new GM plant varieties at the R&D proof of concept level, only 47 went into advanced field trials and only 5 were commercialized. A number of social, intellectual and industry barriers are limiting innovation arrival to market. Is there a failure to transfer technology from the public to private sectors or it is a failure of public sector to move from R to D in developing countries? The USDA has created the Specialty Crops Regulatory Initiative to overcome these problems,. There is intellectual property uncertainty and high transaction cost in ag-biotech.

6. Amelia Díaz focused on IPR considerations for new plant varieties and the development of functional foods, starting with clear definitions on IPR applied to functional plant varieties and to functional GM plants. For instance, a plant patent was issued for the development of the “Pezulla” tomato variety obtained by plant breeding; while two patents were issued for a transgenic soybean variety: one for the genetic construction, the transformed plant and the seed, and the other for the new method or process to make the genetic construction. In the case of non GM functional food products, patent requests can be applied for the product itself (composition, presentation forms) as well as for the method or procedure to obtain the new functional properties. When a traditional knowledge is involved in the new functional food product, collective rights need to be considered when requesting IPR protection.
7. Silvia Salazar focused on biodiversity, intellectual property and biotechnology, browsing the history and the main international agreements on this issue, such as the CBD and the International Treaty of Plant Genetic Resources. Genetic resources are a patrimony of humanity, and free exchange should be guaranteed. However, the asymmetry between food suppliers and technology developers attracts the interest of researchers/enterprises to obtain IPRs on live material (patents, plant breeder rights), which is a source of concern and conflict in the South. The CBD principles are difficult to apply: it is not easy to trace the origins of most modern crops, plant varieties are the result of a mixture of genetic material from diverse origins, thus, it is difficult to determine the contribution of each material in the final plant product. Some sub-regional agreements, such as the Andean Pact and the Central American Agreement, have issued bylaws to facilitate the access to intellectual property, but they do not face the regulations to address the safety and ethical concerns. The IPR regulatory system applied to plants also include other regimes (TRIPS, UPOV, OMPI, national laws), which make it complex, and it affects the process of technology generation.
8. Daniel Ramón focused on new biotechnology strategies for functional food evaluation, and he discussed the chain of evaluation levels including: analysis of probiotic ingredients, in vitro tests, pre-clinical tests, technology adoption and clinical tests. Pre-clinical tests requires in vivo experiments with mice, which is expensive and too slow for the urgency of the pharmaceutical industry, in a competitive world. Daniel presented an alternative developed by his company in order to reduce time and money at the pre-clinical test level: *S. cerevisiae* new, simpler, animal model (the best known eukariot microorganism), which has a fully sequenced genome where 40% is common with human genome. It is small, transparent, eat bacteria, has a short life cycle, and its culture is very economic. Similarly, *C. elegans* has been also used in oxidative stress and increase of longevity pre-clinical tests for CocoonOx, a natural cocoa antioxidant food product. *C. elegans* model can be used as a platform for other pre-clinical tests. Other simpler animal models were discussed.
9. José Luis Solleiro focused on the IPR management applied to functional foods. He browsed and commented with examples a number of IPR management issues, such as: growing complexity; elements of a good IPR management policy in the agri-food sector; the importance of competitive intelligence and a good inventive environment; scope, relevance and costs of patenting by type of

functional food; types of innovation protection; public domain information vs valuation of intangible assets; in-licensing and out-licensing; litigation; how and where to start?

10. William Roca focused on the advances in the development of functional foods based on Andean biodiversity of tubers and roots, with a particular emphasis on maca (*Lepidium meyenii*) and yacon (*Smallanthus sonchifolius*). Maca is rich in glucosinolates (block cancer cells proliferation), as well as phytosterols, flavonoids and alkaloids (fertility recover and energy fortifier). Export are increasing, US\$4M in 2006. High levels of maca valorisation: Pure World Botanicals had a US patent for a maca extract for pharmacological applications (claims: cancer, sexual dysfunction). He also described yacon chemical compounds (fructooligosacharids-FOS), health benefits (anti-glycemic, reduces blood sugar levels, increases insuline), biochemical paths for FOS degradation, agrological aspects, production and exports.
11. Javier Verástegui focused on the potential of Latin American biodiversity to develop functional food products, and on the BioEuroLatina model to promote sustainable development based on the international cooperation on functional food and biotechnology, He also presented details of the EULAFF project financed with a contribution of the European Commission.
12. The discussion was intense with rich exchanges between the public and the speakers. Some of the most important questions, conclusions and recommendations, summarized by the moderator, are shown below:
  - There is a fear reaction against genetically modified food among consumers, although they are conscious about the need to have food with healthier components.
  - There is no coordination to allow the access of intellectual property rights in developing countries, especially to help farmers, researchers and SMEs involved in functional food development.
  - It is important to develop a handbook on Best Practices in IPR Management in order to promote duly protection, innovation and development.
13. Finally, Christian Suojanen gave his final words concluding that EULAFF, the EFB and BioEuroLatina should promote more discussions on the IPR management issues related to functional food, gathering European and Latin American industry, research and government representatives. For this, strategic alliances will be explored in order to materialize this purpose.

Madrid, October 2007

**Francisco Ferrandiz**  
SEBIOT and BioEuroLatina  
Moderator of the Symposium