epobio newsletter

Number 4
March 2007

Realising the economic potential of sustainable resources – bioproducts from non-food crops

Editorial

Welcome to the fourth newsletter of EPOBIO. The development of zero-waste biorefineries and the emerging concept of the bioeconomy are gaining an increasing profile in Europe and beyond, as the EU Seventh RTD Framework programme (FP7) is launched. This makes the work of EPOBIO timely, providing a foundation for future progress in the development of renewable bioproducts from natural resources.

In this context, EPOBIO Newsletter 4 provides you with an up-to-date account of the activities within the project over the last few months and also shows you what has been achieved since priority actions were defined at our 2006 Workshop in Wageningen.

In this issue, two of the industrial partners describe developments in their companies and the relevance of the work of EPOBIO to their business.

Second EPOBIO Workshop

Below you will find details of the 2007 EPOBIO Workshop which is being held in Athens, Greece from 15-17 May. The programme for this event, entitled **"Products from Plants – from crops and forests to zero-waste biorefineries"**, has now been finalised. The workshop will be held close to Athens with transport provided from and to the airport. It will begin on the morning of 15 May and conclude at lunchtime on 17 May. Further information is given below and full details, including booking information, are available in the Workshops section of the website:

http://www.epobio.net/workshop0705.htm

First Flagship Reports Published

The initial EPOBIO activity concentrated on three Flagship themes that were selected by the US/EC Taskforce in Biotechnology Research - "Plant-based bioproducts: creating value from renewable resources". These themes were recognised as important areas for new international R&D activities aimed at delivering a new generation of bio-based products. The first reports from these areas were published in November 2006.

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An overview of the three Flagship Reports is available from the Executive Summaries, while the full reports can be downloaded from the publications section of the website:

http://www.epobio.net/publications.htm

The three reports are:

- Plant cell walls in relation to biorefining: Cell wall saccharification
- Plant oils as industrial feedstocks: Production of wax esters in *Crambe*
- Biopolymers: Alternative sources of natural rubber

Each report provides an overview of the current situation for each area and then identifies research priorities. They also make recommendations about how best to address the needs identified in the reports.

Statistics concerning the interest generated by these reports can be judged by the number of times they have been downloaded from the website.

By the end of January the figures were as follows:

- Natural Rubber - 1528 downloads
- Cell Wall Saccharification - 1479 downloads
- *Crambe* Wax Esters - 1141 downloads
- Executive Summaries - 842 downloads

Around 1300 printed copies have also been distributed to key stakeholders. A few printed copies are still available and can be supplied on request on a first come first served basis.

To request a printed copy, email info@epobio.net

Public Perception Survey

The public perception survey highlighted in the previous newsletter, which consisted both of targeted telephone interviews and an on-line form, has now been completed. We thank those who participated in this. The results are being analysed and will be presented at the Workshop.

EPOBIO Media Information

A new Media section has been added to the website that draws attention to the broader aspects of the work, aimed at both the media and the general public. This contains Press Releases, EPOBIO Factsheets and Image Gallery, as well as contact details of people able to provide further information of a more general nature covering the various activities being undertaken by EPOBIO. You can view the EPOBIO Media section at:

http://www.epobio.net/media.htm

Information Dissemination

The third BioMatNet ITEM update was added to the website in December 2006 on the following web page:

http://www.biomatnet.org/news/news.html

This drew attention to around 80 additions including updates on the IEA, FP7 and Technology Platforms. At the time this was produced the final stages of FP7 ratification were in progress, resulting in formal adoption and the issue of the first call for projects at the end of December. This has been reviewed and an ITEM produced covering those Themes where funding for research related to renewable bioproducts can be found.

See: http://www.biomatnet.org/secure/FP7/F2080.htm

FP7 Programme Launch and Promotion

The Commission is making a determined effort to ensure that everyone with an interest in European Funding is aware of the content and procedures of this, which is the largest, highest funded and longest running programme to be ratified, as detailed below. Launch and Promotion activities include National meetings as well as central activities occurring in Brussels. We have participated in both a specific meeting aimed at bringing the Theme 2 activities (Food, Agriculture and Fisheries, and Biotechnology) to the attention of the new member States (Romania and Bulgaria) and **'Launching FP7 Conference for Information Multipliers'**. In line with the aims and objectives of these events BioMatnet Items have been prepared that include links to the relevant PowerPoint presentations and (in the latter case) video recordings from these meetings. Video recordings are also available from the FP7 Info Days on Energy and Transport.

Database of Websites

We continue to add information about commercial organisations and other stakeholders, as well as information sources and portals dedicated to the non-food use of bioresources to the BioMatNet Database of Websites. We welcome suggestions for further additions. Email: BioMatNet@biomatnet.org

Contact Us

We trust you find this a useful indication of the continuing activities within the project and welcome comments or other inputs.

If you have questions about the work or activities of EPOBIO please contact us at: info@epobio.net

Comments about the website should be sent to: web@epobio.net

If you are not already registered with EPOBIO or BioMatNet and would like to receive periodic emails summarising activities, events and additions to the website then please register with EPOBIO at:

http://www.epobio.net/register.htm

The EPOBIO Management Team

Second EPOBIO Workshop 15-17 May 2007

Following on from our 2006 Workshop **"Products from Plants - the biorefinery future"** our second Workshop **"Products from Plants - from crops and forests to zero-waste biorefineries"** will be held from 15-17 May 2007 near Athens, Greece.

The Workshop will look at the development of the bio-economy in the context of the key issues that face society today – climate change, fossil oil security and cost as well as the expanding global demand for products and services. There is an increasing realisation that green plants have the potential to provide essential raw material feedstocks, address the strategic issues and deliver the sustainable development needed.

Representatives from DG Agriculture and DG Research of the European Commission, as well as from the USDA, will be leading this international workshop organised by the EPOBIO Consortium. The Workshop will have wide-ranging content, appealing to researchers, policy makers, industrialists and research funders. It will focus on the development of second and third generation biorefineries using zero-waste feedstocks, producing multiple products from a crop and providing new opportunities for biochemicals and biomaterials.

At the Workshop we will report the outputs of the EPOBIO project, specifically the optimisation of industrial crop platforms for biofuels, biochemicals and biomaterials through the use of advanced biorefineries. The future strategic development of biomanufacturing through biorefining, as well as the relevant regulatory and policy issues will be set within a global context and industrial perspectives for sustainable development.

While the focus is on EPOBIO activities we realise that there are many others engaged on parallel activities who would like to be able to present their work to this important forum. Hence, in response to requests for active participation we have introduced a Poster Session. If you are interested in presenting a poster, please provide an abstract which will be subject to peer review by the EPOBIO team.

Further details of the Workshop including registration forms and information concerning the submisssion of abstracts for the poster session are available online at:

http://www.epobio.net/workshop0705.htm

We, the EPOBIO Consortium, hope you will be able to join us and look forward to meeting you at this important, strategic international event.

Project Progress – Industrial Perspectives

This section highlights our Industrial Partners through two articles. The first covers an update of the activities of British Sugar in developing biofuels (bioethanol and biobutanol) in the UK, while the second gives an update on the activities of Novamont SpA, Italy.

British Sugar Update

by Gary Punter, Development Manager - Technology, British Sugar plc, Peterborough, UK

British Sugar are building the UK's first Bioethanol factory for imminent start-up during the summer of 2007. Additionally, with its partners BP & Dupont (see news item), British Sugar is investing significant resource into feasibility studies for biofuels such as bioethanol and biobutanol for the UK. Its current focus is therefore dominated by establishing the market, manufacturing and agricultural infrastructure for biofuels in the UK.

British Sugar bioethanol plant under construction at Wissington Sugar Factory, UK

Against this background, the EPOBIO flagships are vital in enabling a skills platform for longer-term sustainable growth. In particular, the EPOBIO cell wall flagship will contribute to the development of European expertise in understanding all types of feedstocks. Combining feedstock knowledge with the development of fractionating techniques will be key in configuring commercial biorefinery operations which will need to exhibit:

- Greenhouse gas reduction and low reliance on fossil fuels.
- Higher yields and increasing land productivity.
- Increased value of co-products & lower costs.

The EPOBIO work on crop platforms will also be of significant help to industry given the need to ensure robust supply chains and reliable source of raw materials from the agriculture and/or forestry sector. Through EPOBIO, access to this developing skill base, at both individual factory level or at industrial strategy level, will be vital in developing long-term growth.

Novamont SpA Update

by Francesco Degli Innocenti - responsible for the ecology of products and environmental communication at Novamont, Novara, Italy

Novamont is developing a biorefinery that will be a new model of sustainable development, integrated with the local area. Using Novamont technology and working in collaboration with Coldiretti we are developing an industrial chain, from crops to products, that uses maize starch and vegetable oils with a low environmental impact. This creates new opportunities for the stakeholders within the chain and will minimise the use of fossil oil resources.

This is a new model that can contribute to re-launching the Italian economy, combine the increasing demand of environmental quality with business competitiveness and give an answer to the growing problems of fossil oil resources. Novamont biorefinery is the first example in the sector and provides integration, at the source, to the bioplastic Mater-Bi® and Origo-Bi® chains. The biorefinery will bring new applications in the field of chemical intermediates. Novamont, a leading company in the sector of bioplastics, has invested approximately €100 million in research and in the construction of bioplastic plants. Now Novamont is going to create a real, integrated biorefinery that uses local natural resources of agricultural origin.

The biorefinery that Novamont is developing in Terni will use vegetable oils, as well as the usual maize starch. Thanks to the collaboration between Novamont and Coldiretti, a joint company has been created by Novamont SpA. A cooperative made up of 600 local partners will maximise agricultural expertise, ensure the use of all the relative discards and shorten the value chain. Due to this strategy, Novamont will be able to industrialise its technologies and use a new generation of chemical intermediates applying the range of Mater-Bi® applications. Once the plant is working at its full capacity, starting from 2008, Novamont will reach an annual production capacity of 60,000 tons of bioplastics that are completely bio-degradable, can be used as fertilizers and have a limited environmental impact throughout their life cycle.

Bags of Mater-Bi®

Novamont biorefinery is much more than an innovative factory: it is the result of a new way of thinking about economy, land use and environment. It is a real industrial model that is economically sustainable and environmentally compatible. It deals - in a different way - with the big challenges facing businesses in Europe:

- The rise in oil prices and its limited supply.
- The crisis in the agricultural sector with the increase of the so-called “set aside” areas and the reduction of the financial contributions to agriculture.
- Serious environmental problems.

- A progressive loss of competitiveness of the western production system as compared to the growth of the Asian countries.

In Italy, more than 800.000 hectares of agricultural land are left uncultivated (set aside) due to EU decisions; the European Union gives some contributions to farmers for this purpose. But thanks to Novamont biorefinery system, theoretically, it is possible to produce approximately 2 million tons of bioplastics, by re-converting these hectares of land into production of maize and oleaginous plants. This amount is equal to a quarter of the entire national demand of plastics, half of the entire quantity of the disposable products. This project is, therefore, perfectly compatible with other kinds of cultivation and may start an entire economic industrial chain, based on environmental competitiveness.

Novamont sees its biorefinery as one of the first real examples of a new model that creates an integrated system among industry, agriculture, environment and local economy. This is a model that can be reproduced in other regions, according to the availability of appropriate crops and the attention to the environmental quality of the region itself. The model has become a reality thanks to investment in research, continuous innovation and environmental competitiveness with a logic of "life cycle thinking" - focusing only on the development of products and systems that bring real economic-environmental advantages.

The work of EPOBIO in the biopolymers area and the work on crop platforms is highly relevant for Novamont. The crop platform work in particular will help to identify other crops that could grow in Europe. It will help the future development of robust supply chains and underpin the type of development that we are pursuing in Terni.

An 'illustration' of the biorefinery concept where agricultural raw materials such as starch replace fossil-based chemicals.

Project Progress – Towards a Sustainable Biobased Economy

by Elma Salentijn and Marcel Toonen, Plant Research International, Wageningen UR, Netherlands.

This article, from one of the EPOBIO Consortium members, discusses issues that impact on the selection of crops for the production of raw material feedstocks.

The introduction of plant-derived raw materials for industrial applications and energy production will lead to an increased use of agriculture land for industrial crop production in the EU. However, high quality agricultural land resources are limited and the production of these industrial crops will compete with the production of food, recreational and ecological functions and already existing non-food uses such as forestry. Besides economic and social considerations, the introduction of industrial crops will have to meet environmental regulations and has to contribute to sustainable development considering both the crop production phase and the conversion or processing phase of plant derived raw materials. Within EPOBIO we aim to identify the optimal crops for the production of plant-derived raw materials. Besides economic and agricultural criteria, it is important that the chosen crops fit in a sustainable development of European agriculture.

The World Commission on Environment and Development defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This definition considers that while development may be essential to satisfy human needs and improve quality of life, it should occur in such a way that the capacity of the natural environment to meet present and future needs is not compromised.

This definition requires further operational implementation. One view may be that it is sufficient when new non-food production and use is at least environmentally less damaging than the processes the non-food production replaces, e.g. substituting fossil oil use by bio-energy should of course lead to reduced CO_2-emissions. Other views claim that land use for non-food crop production is only sustainable when more strict rules are applied, e.g. erosion and water usage should not exceed addition to stocks of soil and water, and that levels of nutrients and organic matter in soil do not decrease. Levels of CO_2 and N_2O in the atmosphere should remain unaffected (Reinders 2006).

To limit the environmental impact of industrial crops, an environmental framework will be required to ensure that increasing land use for non-food production follows an *environmentally-compatible approach* (EEA 2006). Sustainability criteria should be set in reference to an existing situation and it is very important to define an acceptable reference situation as starting point.

In theory, the transition 'from oils to soils', i.e. substituting fossil oils by plant-based raw materials contributes highly to increasing the environmental compatibility, since plant production mostly shows a highly positive net energy balance (more energy output than input). Producing biomass with novel industrial crops and farming systems that are optimised for sustainability rather than solely biomass yield would give synergy between environmental impact and social and economical benefits.

However, net energy production is not the only sustainability criterion. Several other criteria for sustainable development of industrial crops should be evaluated: soil development, organic matter, soil nutrients, toxic emissions, fossil fuels and water. Soil erosion occurs in unstable soils e.g. after excess of rain. It is heavily influenced by cultivation practices such as tilling. Also fallow land that originates after crop removal might lead to soil erosion.

High levels of organic matter in soils are required to maintain high productivity of the cultivated crops (Lemus & Lal 2005). Soil organic matter is an important source for plant nutrients such as nitrogen and phosphate, improves soil structure and water holding capacity and limits erosion (Reinders 2006). The availability of soil carbon and mineral nutrients like sulphur, potassium, calcium and magnesium is important for optimal biomass yield. Perennial crops, like short rotation poplar and *Miscanthus*, which only require limited tilling give, like forestry, an increase in soil carbon (Garcia-Quijano *et al*. 2005).

The availability of water strongly influences the potential of biomass production. In semi-arid regions this will probably be the main limiting factor. Increases in irrigated land have contributed to water scarcity, with the lowering of water tables and water levels in rivers and lakes. Effects of increased water use include salinisation, and water contamination, loss of wetlands and the disappearance of habitats (EEA 2006).

High biomass yields appear desirable for industrial crops, but this might require high inputs of N-fertiliser, pesticides and energy. Due to the high energy input for the production of N-fertiliser and pesticides and the use of fossil fuels for the operation of machines this might not be sustainable. Given the fact that agricultural land is scarce and that production should be sustainable the aim is to optimise production in such a way that an optimal yield is achieved at low environmental costs. Perennial crops have a good energy use efficiency, which means that their potential energy content is much higher that the energy required producing the crop. Crops like *Miscanthus* have low N-fertiliser demands because they internally recycle nitrogen and small amounts of nitrogen are exported in the product because of low nitrogen concentrations in the product.

The agricultural landscape in Europe is large and diverse in terms of climatologic and soil conditions, available agricultural resources and management practices, and production costs. To make a direct comparison of environmental impact of different crops, a complex integrated approach is required. Such an approach should include possible crops at different European regions, the various management approaches that can be applied and look at ways industrial crops can be processed into products. For all options environmental, social and economic aspects should be analyses for the current and future situation. Results of these analyses can support policy makers to develop legislation to support sustainable development and farmers and processors in the choice of the optimal set of crops for their specific region.

The biobased economy is very dynamic. Prices of raw materials (especially for energy production) are strongly correlated with fossil fuel prices. Currently, we see a strong fluctuation of these prices, but over longer time periods they show a steady increase. Breeding activities and optimisation of agricultural practices for existing and novel crops will improve yield. Especially for novel crops yield increases of over 10% can be expected in the coming years.

To meet these challenges of the bioeconomy, a strong effort is being made in the optimisation of processing facilities. Especially for energy production a number of technologies are being developed to convert ligno-cellulose into biofuels. Given all these factors, it can be foreseen that costs of production of plant-based raw materials will decrease in time and become more competitive towards fossil fuels. At the same time climatological conditions will change in Europe which will affect European agriculture strongly (Tuck *et al*. 2006). To integrate all these developments into an integrated approach is virtually impossible.

Several models have been developed that enables science to predict the correlation between specific factors like for example crop yield and environmental impact. The applicability of such models has been shown using the 'Environmental Policy Integrated Climate (EPIC)' model. Possible yields of *Miscanthus* and poplar coppice have been predicted for all arable regions in the EU-25. The pattern for biomass yield distribution seems similar for both production systems however, *Miscanthus* yields on average 11.6 tons per hectare per annum where poplar yields 6.7 tons per hectare per annum. The environmental impact was captured by 'direct' and 'indirect' N_2O-N emissions. The EPIC analysis has shown that environmental impact of

biomass production can be analysed using specific biophysical modelling tools (Schmid *et al*. 2006).

Currently this model is applied to find the competitive economic potential of non-food crops like *Miscanthus*, willow, poplar, and *Crambe* in the EU-funded project European Non-Food Agriculture. See BioMatNet ITEM:

http://www.biomatnet.org/secure/FP6/S2078.htm

and ENFA website:

http://www.fnu.zmaw.de/European-Non-Food-Agriculture.5700.0.html

The Chalmers VIEWLS Model was used in the EU-funded project Clear Views on Clean Fuels (VIEWLS) to analyse issues related to the production and energetic use of biomass. See the following BioMatNet ITEM for results from the VIEWLS project:

http://www.biomatnet.org/secure/FP5/S1685.htm

It concluded that there is sufficient biomass potential in Europe to meet the additional 20% target for biofuels in 2030 as defined in the biofuels directive. Energy crops will be in high demand to supply feedstock both for biofuels and bioenergy – for more information see the VIEWLS website (http://www.viewls.org) and the continuation of this activity through the new Biofuels Cities (CAB-CEP) project:

http://www.biomatnet.org/secure/FP6/S2066.htm

To develop a sustainable agriculture to produce plant-derived raw materials an integrated approach is required. Such an approach will allow choosing the most sustainable production methods for cultivation and processing of dedicated crops. This will direct future developments that will address human needs and improve quality of life, while living within the carrying capacity of supporting ecosystems. Within EPOBIO we make an inventory of the current state of art for a set of selected crops. This set of data can be used to predict the environmental impact of a specific crop. At the same time lack in knowledge can be identified and future research questions defined.

References

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Project Progress – Support Themes

Update on Public Perceptions

Fieldwork on social attitudes and expectations has been completed and the survey data have been processed and analysed for most European countries included in the sample. The data of the national surveys will be reported for each country separately and then they will be compared with each other with the aim to identify commonalities and differences between countries.

While the comparative analysis of national surveys is still in progress, the first stage of the analysis per country suggests that generally European consumers are positively disposed towards the industrial uses of plants. The vast majority reported to be willing to welcome the introduction of novel non-food bio-products to the market and to agree that initiatives for their development should be encouraged. However, public rejection of the new technologies is not impossible, for example in countries in which some applications, and especially genetic modification, are disapproved or in which central actors, like national governments and industries, are distrusted.

In parallel, the data from the online survey have been delivered and analysed. These data have been treated independently from the data of the national surveys as long as they attest opinions of a specified target population, i.e. experts and those who are involved or are particularly interested in the issue matter. This population, even though much more knowledgeable appeared to be as supportive as lay publics did

regarding purchase intentions towards end products. Besides, they presented higher percentages in usefulness and lower in risk perception and disapproval concerning all the application involved compared to the general public.

The details of both the online and national surveys results will be included in the full report of the Attitudes and Expectations Support Theme, which is expected to be released in April 2007, and the key findings will be incorporated into Flagship Themes reports.

The report will outline the following:

- General traits and demographic characteristics of the sample
- Information on all areas covered, graphics and frequencies
- General tendencies and attitudinal attributes defined by clusters of variables
- Explanations of 'special cases' and outliers
- Suggestions for effective science communication

Update on Science to Society Communications

Since October 2006, communication activities have focused on developing the tools for a successful and effective relationship with the media and to establish the best means of disseminating, as widely as possible, the release and main conclusions of the first series of EPOBIO reports at the end of November 2006.

Development of a Media section on the EPOBIO website

A dedicated Media section of the EPOBIO website was developed to efficiently direct members of the media to press releases, news items and supporting information. A series of fact sheets were developed to complement the scientific analyses and issues presented by the Flagship reports and to provide a background to EPOBIO, the Flagships and Flagship topics.

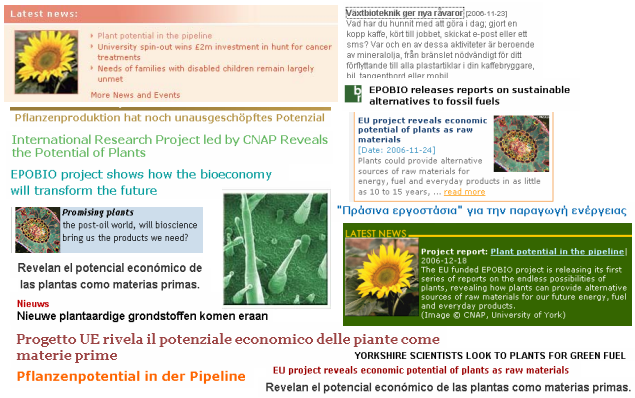
The titles of the nine fact sheets are shown in the following table that also indicates their relationship to various sectors of the activity:

EPOBIO	1. EPOBIO background
	2. EPOBIO quick facts
	3. EPOBIO management & consortium
Flagship areas	4. Biopolymers
	5. Plant Oils
	6. Plant Cell Walls
Flagship reports	7. Alternative sources of natural rubber
	8. Plant oils as lubricants
	9. Improving cell wall degradation

Press releases

The communication strategy for the reports was centered on communicating key messages, opportunities and issues. Press Releases in 6 languages were issued across Europe using EPOBIO partner press offices and news services.

The collage below illustrates some aspects of this activity, with full copies available on the EPOBIO website.



Media coverage received in response to the communication activities

The release of information to the media concerning the EPOBIO reports resulted in at least 73 items covering this. This included 22 printed articles, two in national and twenty in regional newspapers as well as one national radio broadcast and at least 50 articles online.

Coverage was mainly from online news sites (general and science, technology or research focused). In the majority of cases, the coverage received was successful in presenting EPOBIO as an international project, identifying the local lead partner, explaining the potential of plants to replace fossil fuels and introducing the three Flagship areas and their corresponding reports.

Continuing activity

Since the release of the press releases the following ongoing activities have been carried out:

- Analysis of the differences in communication strategies for various sectors focusing on the science communication / education section and industry.
- Analysis of the views of policy-makers in the communication steps required to underpin the development of the bio-economy and future policy.
- Implementing communication strategies for future EPOBIO reports.

Dissemination through BioMatNet

During the past months the three main activities of BioMatNet have been the production and addition of further ITEMs to the website, updating of the Database of Websites and attendance at FP7 promotional events.

The 3rd BioMatNet ITEM update was added to the website in December 2006. You can view this at:

http://www.biomatnet.org/news/news.html

The ITEM update drew attention to around 80 additions including updates on the IEA, FP7 and Technology Platforms. Some 200 additions have also been made to the Database of websites.

In addition it should be noted that as CPL is involved in both the EPOBIO project and in the Secretariat of the newly formed Biofuels Technology Platform it has been possible to create a synergy between these two EC-supported activities in order to optimise resources. In particular the BioMatNet website has been used as the underlying information source for information concerning EU RTD and Energy Framework (EIE) projects covering biofuels thus avoiding the need to duplicate information.

View the Biofuels Technology Platform website at:

http://www.biofuelstp.eu

FP7 Promotional Meetings

As indicated above FP7 has now been officially adopted, the first call for proposals issued and numerous national and international events set up in order to optimise the dissemination of information about the new programme and encourage participation. Through Jim Coombs, EPOBIO/BioMatNet was invited to participate in two such events.

The first event, **FP7 - Research in the field of biotechnology, agriculture, food, fishery and forestry - a cooperation between EU, Balkan region and Eastern European neighbourhood area**, was held in the Romanian Parliament Palace, Bucharest at the end of January, where the following paper was presented 'Bioproducts and biofuels from agricultural raw materials - the development of new technologies through research in the non-food area', to an enthusiastic audience from, not only the immediate target audience but also surrounding potential Member States of the future.

The second event was **Launching FP7 - Conference for Information Multipliers**, held in Brussels in early February. The purpose of this European Commission conference was to provide participants with complete first-hand information and a series of communication tools regarding the Seventh Framework Programme. These communication tools have been tailored for needs of information multipliers, the term being used to describe organisations and other common interest groups able to spread the information on as widely as possible. It is gratifying that the EC recognises the contributions made by BioMatNet in furthering this aim.

Some of the presentations, of most relevance to the non-food use of biomaterials, are also available on the BioMatNet website:

http://www.biomatnet.org/secure/FP7/S2108.htm

Further information, including overheads from most of the presentations, is available on the BioMatNet website at: http://www.biomatnet.org/secure/Ec/S2107.htm.

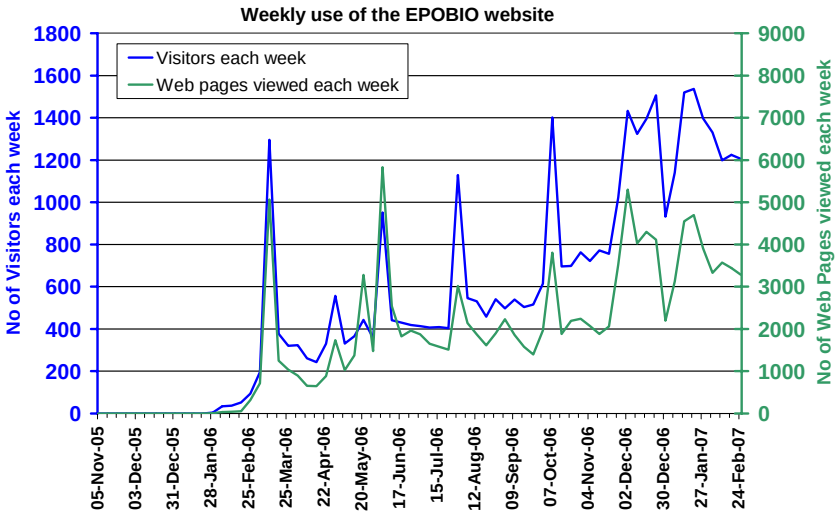
FP7 theme 2 presenters at the Balkan meeting: Jean-Marc A Martin, Maria Spulber, Piero Venturi, Judith Krommer, Antonio Di Giulio and Iulia Mihail

Website Statistics

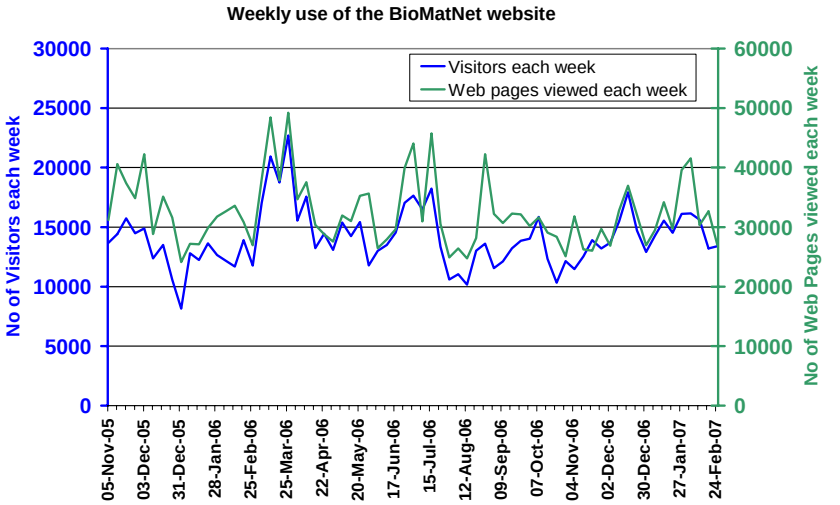
Statistics covering the use of the websites are prepared on a regular basis. Most recently, in response to a request from the Commission, graphs were produced showing weekly use of the two sites, http://www.epobio.net and http://www.biomatnet.org since the start of the project in November 2005.

As illustrated (top right), there has been a steady increase in use of the EPOBIO website, with the underlying trend superimposed by a series of peaks that reflect the timing of e-mailshots that go out periodically to around 6000 individual registrants to promote the release of reports and newsletters. The response to such mailshots is highly encouraging since integration under the more recent peaks indicates that well over 50% of the recipients respond by looking at the site within a week or so of receiving the information.

As many of you may know, BioMatNet represents a continuation of a previous EU-funded activity that ended in December 2004. This was re-launched within the framework of the EPOBIO project. As shown below, the re-launch email resulted in an immediate (record) response of over 20,000 users per week, which has then settled to an average of around 15,000 users per month (it should be noted that due to the structure of the website some hits, such as those on the Database of Websites, are not recorded).



Graph showing the number of visitors to the EPOBIO website each week (blue line, lefthand scale) and how many web pages have been viewed (green line, righthand scale).



Graph showing the number of visitors to the BioMatNet website each week (blue line, lefthand scale) and how many web pages have been viewed (green line, righthand scale).