

Editorial

Dear reader,



“And thou shalt number seven sabbaths of years unto thee, seven times seven years; and the space of the seven sabbaths of years shall be unto thee forty and nine years. Then shalt thou cause the trumpet of the jubilee to sound on the tenth day of the seventh



month, in the day of atonement shall ye make the trumpet sound throughout all your land. And ye shall hallow the fiftieth year, and proclaim liberty throughout all the land unto all the inhabitants thereof: it shall be a jubilee unto you; and ye shall return every man unto his possession, and ye shall return every man unto his family”, Moses proclaimed once in the third Book of Leviticus. In the Jewish “Yovel year”, the field work remained suspended over the whole year, the Hebrew slaves were released, pledged land was given back to the owners, all debts were written off. The Christians took over the custom and reduced the time period to 25 years.

Today, Moses does not read the riot act to anyone and also the times of anniversaries are not so strictly observed. The parties are celebrated, as they like; an anniversary can be celebrated after ten years or time periods that are divisible by ten. This becomes even more interesting, when anniversary years are shifted because of historical breaks. Like in our case: We celebrated the 50th anniversary of our institutes founding in the year 2008 (a real anniversary year according to biblical standards) – and this year we celebrate the 20th year of the IPB refoundation after the reunification of Germany. Of course we do not keep biblical rules: we work the whole year – often harder than in non-anniversary years. But at least in one point we can celebrate our anniversary year traditionally. Our former Managing Director, Dieter Strack, will delight us with his saxophone on 14 September. And in his Rolling Mill Orchestra, which accompanies him, there will be certainly a trombone, which will belt out the anniversary greetings to us most solemnly. Based on this we wish you: Party well, together with us!

One does this only once in a blue moon.

**Best regards,
Sylvia Pieplow and Sylvia Siersleben**

IPB Newsletter 2012/1



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20 years of IPB



The Leibniz Institute of Plant Biochemistry celebrates its 20th anniversary

The year 2012 will be a year of jubilees for some of the scientific institutes on the Weinberg Campus in Halle. As well as the Fraunhofer and the Max Planck Institute the IPB celebrates the 20th anniversary of its refounding, that took place on 1 January 1992.

The turn of the year 1991/1992 was a very special occasion for the employees of the Institute for Biochemistry of Plants (IBP). Thirty-three years after its foundation the research institute of the former Academy of Sciences, was closed on 31 December 1991. One day later it was reopened under a new name, as Institute of Plant Biochemistry (IPB). With this refoundation its integration into the German research system was completed successfully, which was a common process for many Academy-connected institutes of the former GDR. Preceding this circumstances a lot of other radical changes took place, that should be remembered at this point.

On 31 August 1990 both German states signed the unification treaty, that prescribed the dissolution of the Academy of Sciences of the GDR based on Article 38. Thus the fate of the Academy-con-

nected institutes was in hands of the five new federal states, which were founded on 14 October 1990 following the reunification of Germany. The federal ministries of science had to dissolve the research institutes at the end of the year 1991 and transfer them to a new legal form. The Scientific Council was entrusted to evaluate the institutes and to give recommendations to the state governments about the subsequent fate of the former Academy-connected institutes. There were three possibilities: closure, affiliation with a university or incorporation into a nonuniversity research institution.

On 6 February 1991 an expert committee of the Scientific Council arrived at the IBP and began its evaluation. In his speech during the institute's foundation ceremony (on 2 April 1993) founding director Benno Parthier remembered this



Reconstruction work: symbolic and concret.

Benno Parthier and the former Lord Mayor of the city Halle, Klaus-Peter Rauen (right) at the groundbreaking ceremony of the Phytotechnikum in May 1994.

period laconically: „After the reunification [...] the Scientific Council was entrusted to examine the scientific and intellectual landscape in the GDR. Depending on the individual knowledge of our stressed evaluators they had to *pick weeds* or [...] *look for pearls*. In February 1991 a professionally experienced group visited our Institute for Biochemistry of Plants. It was not an unknown factor for the evaluators.“

20 years of IPB



Most of the things the evaluators saw in the laboratories and heard in conversations with the employees were reviewed very positively, but there were also critical remarks. In its statement to the nonuniversity research institutes in the former GDR in the area of life sciences and medicine of 5 July 1991, the Scientific Council gave *inter alia* the following recommendation for the IBP:

„The Institute for Biochemistry of Plants is an institute of high international reputation. [...] Among all other institutes of the former GDR it holds an outstanding position [...]. In view of the excellent tradition in Halle in the area of plant chemistry, because of the advantageous location at the Weinberg Campus in neighbourhood to other scientifically related institutes of the Martin Luther University, the Scientific Council recommends the foundation of an independent research institute [...]. The Scientific Council considers, that the institute fulfills all conditions of a Blaue-Liste-Institut [editor's note: precursor of the Leibniz Association] because of its supraregional importance and its overall state, science policy interest.“

Thus the first obstacle for a continued existence of the institute as a nonuniversity research organization was taken. A founding committee, consisting of scientists of the „old“ federal states as well as representatives of the state and federal ministries of science had to implement the recommendations of the Scientific Council with regard to substantive and personnel issues into rough

reality. Especially the separation of the employees in lucky and sad ones was very difficult. The existing 162 established positions were reduced to only 90.

Furthermore the institute received money from a support fund for 40 more positions, which were restricted to five years, in order to keep other employees from immediate unemployment and to acquire junior scientists from the other part of Germany, which was supported because of the officially wanted „social mix“.

The legal regulation of the IBP dissolution and its subsequent refoundation led to the absurd si-

uation that all employees of the institute had to apply for their own positions. In December 1991 one tried to make a fair decision using a well defined method of selection according to professional, political and social criteria. Thirteen employees were accused of having worked for the Ministry for State Security.

Anniversary event

On 14 September 2012 the IPB celebrates its 20-year existence

However, most of them had left the institute already.

On New Year's Eve of the year 1991, the IBP, which made a name for itself in the national and international research area with about 2400 publications, 97 doctoral degrees, 28 post-doctoral degrees and 219 patents, ended its existence on paper. It continued in substance and intellectual direction, but it had changed. Thanks to the commitment of a lot of intelligent minds it was reborn under a new name. Benno Parthier remained Managing Director of the IPB until 1997, which is now financed as a member of the Leibniz Association by the federal government and the federal states each holding 50 percent. Under his leadership

20 years of IPB



*Old and new:
Laboratories in
1977 (left) and
today with new
equipment (right).*

the organizational, structural, legal and administrative basics for an easy integration into the new research area were created: a governing statute was developed, the advisory and controlling bodies were established, the IPB building was reconstructed, renovated and technically improved. Above all, however, a new directorate was formed.

Wisely and with a great deal of persistence, Benno Parthier navigated the institute through the turmoil of the reunification into the harbour of the Leibniz Association.

For this reason the IPB will honour its founding director on the day of the anniversary ceremony and will celebrate his 80th birthday with him.

What the institute owes him in small-scale, Germany does it in large. As president of the Leopoldina and competent expert of the East German research system he was elected 1990 into the German-German commission of the Scientific Council, where he had fulfilled a difficult intermediary role between researchers from West and East Germany, between science and politics. For his contributions to the successful reunification of the research systems in East and West Germany, Benno Parthier was awarded with the German Federal Cross of Merit in November 1997 and with the Hans-Olaf-Henkel Award for Science Policy of the Leibniz Association in November 2007.

[Sylvia Pieplow]

Personalia



New Junior Research Group of the Science Campus Halle

Since 14 October 2011 one of our Independent Research Groups *Protein Recognition and Degradation* under the leadership of Dr. Nico Dissmeyer is the official Junior Research Group of the *Science Campus Halle* ([Link](#)).

Dr. Nico Dissmeyer has worked at the IPB since March 2011. His research group investigates the molecular mechanisms that underlie the protein recognition and -stability as well as specific degradation processes. At the moment the team is composed of two PhD students. *Frederik Faden* und *Christin Naumann* began in Autumn of last year with their doctoral theses in the junior research group. Both of them are funded since 1 October 2011 as graduate fellowship holders by the State of Saxony-Anhalt.

With the additional funding by the Science Campus new financial resources for two additional PhD positions were secured. [[Sylvia Siersleben](#)]

The Science Campus *Plant-based Bioeconomy* was founded at the beginning of March last year between the Land of Saxony-Anhalt, the Martin Luther University and the Leibniz Association.

The aim of this special cooperation between the university and non-university institutions of the WGL is the support of plant and agricultural research and teaching in Halle and Saxony-Anhalt. The project is financed by the Land of Saxony-Anhalt with a budget of 1,4 million euro and by the Leibniz Association with 150.000 euro for the next three years.

The support of scientific excellence in this context will last seven years in order to promote economic development according to the Ministry of Science and Economy. The model Science Campus stands for a special cooperation of university and non-university research. It was initiated by the Leibniz Association. [[Sylvia Pieplow](#)]

Congratulations to Dr. Stefanie Ranf!

Dr. Stefanie Ranf has completed her doctoral thesis on the topic: „The role of calcium signalling in innate immunity in *Arabidopsis thaliana*.“



in summer last year with the final grade *summa cum laude*. For her outstanding achievement she was honored by the Martin Luther University with the *Luther Certificate*. The young scientist remains true to the IPB. Stefanie

has now a postdoc position in her former working group under the leadership of Dr. Justin Lee (department SE). Since the beginning of March she has also undertaken the office of the postdoc speaker ([see page 10](#)). [[Sylvia Siersleben](#)]

Congratulations to Robert Cremer and Martina Lerbs!

Robert Cremer, until now a trainee in our Computer Support Group (system integration), has completed his final exams early because of his excellent performances on school-based and practical levels.



From January this year to July 2013 he is working at the IPB as network administrator. Aside from the general support of the Network Administration he will develop a new program for employee statistics, that should facilitate the acquisition and maintenance of personal data in the administration. [\[Sylvia Siersleben\]](#)

We say: Congratulations and all the best wishes for the new start into working life!

Martina Lerbs, technical assistant in the department of Bioorganic Chemistry (NWC), has completed her 25 years of service. There are few people who know the institute as well as she does.



Since 1 January 1987 she worked here as chemical laboratory technician and therefore wandered through some departments. She began her work with Professor Sembdner on plant growth regulators, then changed to the field of molecular biology with Professor Parthier and came finally to Professor Adam in the department of Bioorganic Chemistry (today under the leadership of Professor Wessjohann). Accordingly her knowledge of different laboratory methods is quite broad: she can work with cell cultures as well as with DNA and proteins or plant material. For the last 15 years she has been working in the field of mass spectrometry. Furthermore Martina Lerbs had trained three apprentices to chemical labora-

tory technicians with lots of success: one of them, Lars Gabriel, finished his education earlier and started a vocational diploma to study chemistry afterwards. Two further trainees, Nicole Hünecke and Katharina Wolf, are working now at the IPB together with her hand-in-hand.

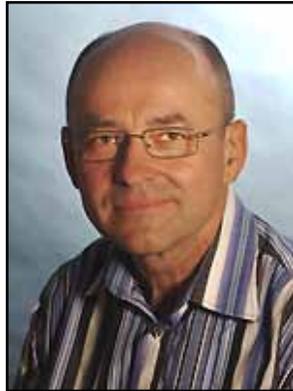
Martina Lerbs is also very engaged in personnel policy events: For more than ten years she is a member of our Employee Committee.

About the IPB she says: „The best thing is the friendly and very cosmopolitan atmosphere. You get to know a lot of interesting and new people, particularly foreigners, who give us new insights into other cultures.“

Sixteen years and 8 months are left for Martina Lerbs before she will retire. We congratulate to the 25th anniversary, thank her for a quarter of a century female power and look forward to her next interdepartmental activities. [\[Sylvia Pieplow\]](#)

We say goodbye to Hans-Günther König

From 1 May Hans-Günther König, leader of our Computer Support Group, left the IPB after 33 years of service and moved to the release phase of part-time work for older employees. With him the institute have lost one of its creative minds, who got a lot of machines running and was indispensable for the care, maintenance and repair of technical devices of all kinds.



glassblowers, precision device engineers, precision mechanics and electronic technicians. As service engineer for scientific devices, Mr. König took care of photometers, mass spectrometers, centrifuges, shakers and the electron microscope. He changes power supplies, spools and lenses, exchanges transistors and resistors. The sustainable creation of new devices has so far been limited to the development of thermostats and endpoint controllers for chromatography columns, but he also re-equipped a number of devices with improvements, that made them safer, more stable or better to use. For the optimization of existing devices Hans-Günther König got more than 20 premiums in the time up to the reunification.

The turmoil of the reunification process also confused Mr. König temporarily. After Managing Director Professor Parthier informed his colleagues about the restriction of the positions in the IPB, Mr. König wanted to become self-employed. With a journeymen's certificate for the turnery he wan-

ted to earn his money. He asks the Director for premises, that he wanted to rent for this purpose. The request was refused. Instead, Mr. König has been asked to apply for a position at the IPB and to continue working there.

So it happened and Mr. König became leader of the working group Devices, Electrical Engineering and Computer Services. In this role he continued working on devices, maintained phyto chambers and prepared the contracts with our electricity providers. The relaunch of our websites to the content management system Typo 3 was initiated by him.

As the only non-scientist of the institute Mr. König had the opportunity to accompany a research expedition. In 1986 Siegfried Huneck asked him to help at the Institute of Folk Medicine in Ulan Bator and repair the devices of the Mongolians. After that four-week stay in the Far East Mr. König was considered as a „Mongolia expert“. In this role he followed Hun-

eck two years later again to the Tartars, this time as expedition helper. Together with the scientist, with whom he had a close friendship until his death, he collected mosses and lichens.

And now?

„Home, grandchildren, turning, hiking and cycling.“ Probably Mr. König will not suffer from boredom, because all he learned at the IPB he can still use. Finally the hobby woodturner mentioned the good opportunities for development: „I had a lot of freedom and possibilities at the IPB. My working fields were really widespread; it comprises high voltage to vacuum. To live out this flexibility without being thwarted was the chance the IPB gave to me and probably to all other people, who really know to use it.“

We hope that Hans-Günther König does not forget the institute among his numerous hobbies and wish him a lot of fun, curiosity and relaxation in his early retirement. [\[Sylvia Pieplow\]](#)

Scientific Community I

Steffen Abel is new reviewer of the German Research Foundation (DFG)

Since 9 February 2012 Professor Steffen Abel, leader of the department Molecular Signal Processing, is one of the two official evaluators in the subject *Allelobotany - Organismic Interactions* of the scientific council *Plant Sciences* of the German Research Foundation (DFG). The second evaluator of this subject comes also from our ranks: Thorsten Nürnberger, professor of Plant Biochemistry at the University of Tübingen once worked as group leader in the department Stress and Developmental Biology. Together both professors will evaluate funding proposals in their subject for the next four years. According to the DFG this has to be done based on the rules of confidentiality, impartiality, ensuring good scienti-



fic practice and the scientific independence of all submitted research applications. By means of this quality assessment the senate of the DFG decides on the eligibility and financing of the scientific projects. Furthermore the scientific councils advise the senate in strategic issues, for example in identifying new fields of research or the development of new funding programmes. Overall, about 600 official evaluators are working on a voluntary basis for the DFG throughout Germany. They are elected by approximately 100.000 members of the DFG every four years. The 48 scientific councils, in which they are organized, cover all relevant fields of research in Germany from *Old Cultures* to *Construction and Architecture*. According to the DFG more than 17.000 research proposals were evaluated by the scientific councils in 2010. Overall, 10.200 of the applications were reviewed positively. With the first official meeting of the scientific council *Plant Sciences* in spring this year, Steffen Abel will take his new office. For his new job we wish him all the best and good luck! [\[SP\]](#)

Personalia



Scientific Community II

Dierk Scheel evaluates Collaborative Research Centres

Professor Dierk Scheel submitted Steffen Abel for his new office as evaluator. The head of the department Stress and Developmental Biology is entitled to make



such nominations because of his many years of working for the DFG. He was evaluator for 8 years, worked the last three years for the senate committee of the Collaborative Research Centres (SFB) and now was elected again for three years further on this committee.

The senate committee of the SFB is appointed by the DFG and consists of a maximum of 40 scientists. These attend the SFBs from the financing

applications, through the evaluation and assessment processes, and on to the financing decision. All members of the senate committee SFB also belong as scientific members to the grants committee SFB, which decides on the funding of the SFBs in every financial year. In these committees the scientists have the function of rapporteurs, who have to articulate their opinion about the compliance with regulations, fairness during the awarding but also issues of content on various topics.

The DFG currently supports 234 Collaborative Research Centres (as of 1 Januar 2012), distributed across 60 host universities. For this purpose 564 million Euro are available according to the business plan 2012. [[Sylvia Pieplow](#)]

New PhD and postdoctoral speakers are elected

In October last year new PhD speakers were elected for all four departments. Thus **Susanne Forner** (department SZB) and **Juliane Fischer** (department NWC) continue in their function. New in the office are **Michael Gerlich** (department SE) and **Antje Hellmuth** (department MSV).

In the course of this years institute meeting in Wittenberg on 5 and 6 March, the get-together was used to elect a new postdoctoral speaker for the next year.

Therefore it was voted democratically on the Leucorea forecourt. **Dr. Stefanie Ranf** from the department SE was elected as the new speaker. **Dr. Jörg Ziegler**, postdoctoral researcher in the department MSV, was appointed to be her deputy. Both of them now represent the interests of all postdocs within the Institute Council. They relieve Dr. Carolin Delker and Dr. Jens Müller who were speakers of the last year. [[Sylvia Siersleben](#)]

Personalia



Dr. Claudia Flügel is the new scientific coordinator of the Science Campus Halle

The foundation of the Science Campus Plant-based Bioeconomy was successfully done. Now one has to bring life into the cooperation project. In the future Claudia Flügel is responsible for this mission. Since the beginning of this year the biologist holding a PhD, organizes and coordinates the cooperation project Science Campus in Halle.



There is a lot of work to be done: first, the visibility of the Science Campus must be increased by the development of its internet presence, logo and corporate design. This is to be followed by joint application for third-party research funds on the national as well as on the EU level. Furthermore, the support of young scientists and a sustainable transfer of knowledge and technology in politics, economy and public awareness are on the agenda of the Science Campus. „Our cooperation partners from the IPB, IPK, IAMO and the Natural-Science Faculties of the University of Halle have excellent and autonomous competencies“, says Claudia Flügel. „These strengths should be

bundled. If the visibility of the community in the Science Campus increases, then our individual partners can also profit in the end.“

Creating a reasonable timetable and calling the various experts to round table discussions, are now the greatest challenges for her. To manage all the different tasks she faces in her new position as coordinator, Claudia Flügel brings optimal prerequisites. She has worked on plant science topics in her diploma as well as in her doctoral thesis. During her postdoctoral period at the Max Planck

Institute for Molecular Plant Physiology she began to look beyond the horizon of daily research. By means of participation on a number of workshops and correspondence courses in fields of project management, intercultural communication, business economics and team building she broadened her knowledge.

Currently Claudia Flügel is involved extra-occupationally in the master program science marketing, that includes the topics lobbying, budgeting, science journalism, fundraising and national and international research funding.

The official opening of the Science Campus Plant-based Bioeconomy took place on 8 June at the Leibniz Institute of Agricultural Development in Central and Eastern Europe (IAMO) in Halle.

[Sylvia Pieplow]

Glandular trichomes - chemical manufactories in plants

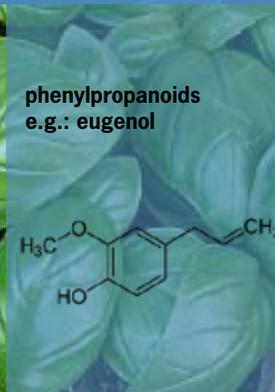
Glandular trichomes form the core of the research topics brought to our institute by Alain Tissier. For many years the native Frenchman is working with the glandular hairs, that are excellent experimental systems because of their structure and their special biochemical properties. But what are trichomes exactly and what functions do they have?

In Greek the word *trichom* means: hair felting. Scientists took it over in their terminology, because it describes hair-like structures, that are developed by some plants on their surface, especially on leaves and stems. There, they have diverse functions depending on type. In physical terms they are barriers, that fend off insects and predators. But in some plant species

they can also attract: as part of nectaries they increase the attractiveness of the plant to insect pollinators. Inside sticky traps they are necessary to obtain food. In case of many plants trichomes play a role in regulating the water and salt metabolism. Or they protect against higher radiation, because they can reflect direct sunlight by their shape and arrangement.

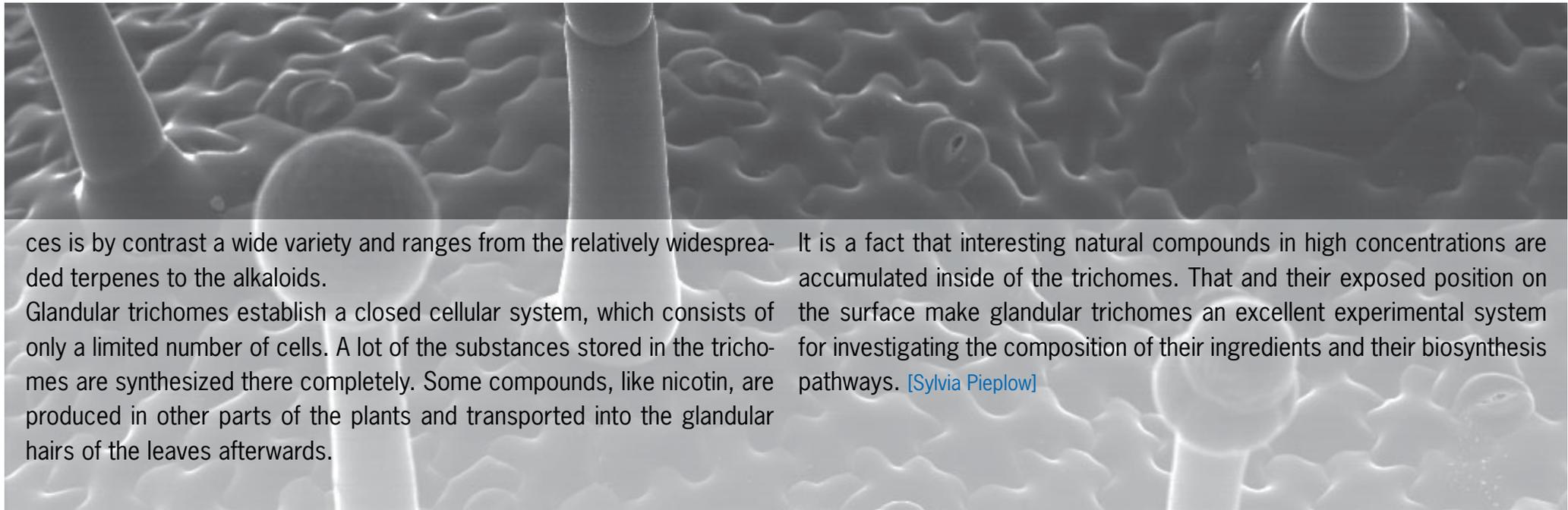
Glandular trichomes (lat: *glandula* = little gland) produce and store plant metabolites. As part of essential oils these secondary plant compounds have been used by humans as healing substances, toxins, spices and fragrances for thousands of years. The occurrence of glandular hairs is restricted to a few plant species (see picture bar) - the spectrum of the produced substan-

Mint family (Lamiaceae)
e.g.: Mint, basil, sage and rosemary



Aster family (Asteraceae)
e.g.: sunflower, feverfew



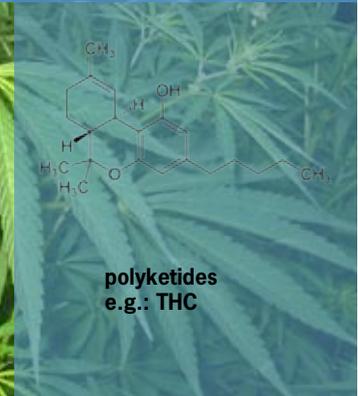
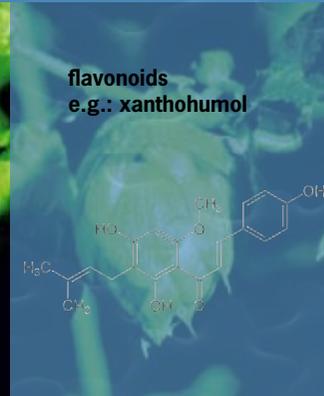


ces is by contrast a wide variety and ranges from the relatively widespread terpenes to the alkaloids. Glandular trichomes establish a closed cellular system, which consists of only a limited number of cells. A lot of the substances stored in the trichomes are synthesized there completely. Some compounds, like nicotine, are produced in other parts of the plants and transported into the glandular hairs of the leaves afterwards.

It is a fact that interesting natural compounds in high concentrations are accumulated inside of the trichomes. That and their exposed position on the surface make glandular trichomes an excellent experimental system for investigating the composition of their ingredients and their biosynthesis pathways. [Sylvia Pieplow]

Nightshade family (Solanaceae)
e.g.: pepper, tomato, tobacco, thorn apple

Hemp family (Cannabaceae)
e.g.: hops, hemp



Glandular trichomes - all kinds of terpenes

The key components of essential oils, that are produced in glandular trichomes, are the terpenes - a group of substances, which comprises with 8000 known compounds and about 30.000 closely related terpenoids, making it one of the largest and most heterogeneous substance classes of secondary plant metabolites.

Essential oils and many terpenes have antimicrobial efficacy, that is known in almost all cultures. Terpenes are used as preservatives, for cosmetic products, as therapeutics and in the perfume and aroma industry. Some terpenes act as plant growth regulators and are important signaling substances in the interaction between plants and insects.

Because of their economic importance and their easy accessibility on the leaf surface, Alain Tissier is interested in achieving a better understanding of the biosynthesis of specific terpenes. An essential oil is always a mixture of a lot of different ingredients: the desired substances, like the bioactive terpenes, are often only present in very low concentrations. With knowledge of the biosynthetic pathways and the corresponding en-

zymes and genes, it will be possible to increase the production of the bioactive terpenes inside of plant trichomes. This can be done with breeding experiments as well as genetic modifications of the corresponding plant. With simple biosynthetic pathways an energy-efficient fermentative production with the help of yeast or bacteria of economically important natural compounds is possible.

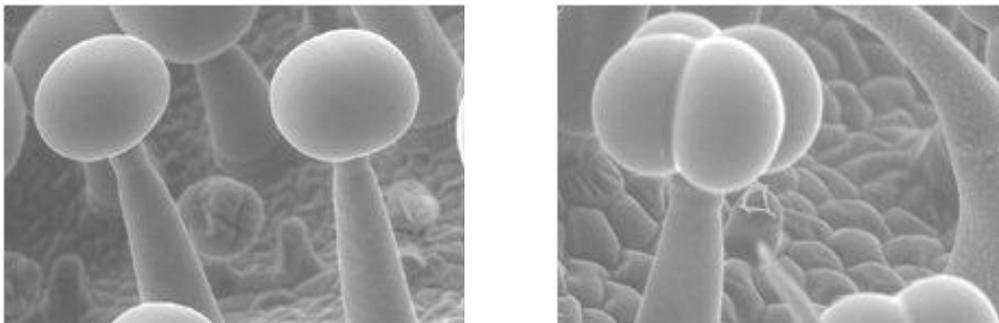
But this still lies very much in the future. First the biosynthesis pathways must be investigated. Alain Tissier wants to do this with different substances from different plant species. This includes for example abienol, a diterpene, that is produced as a precursor of fragrances. However, its biosynthesis is unknown. The biosynthesis of sesquiterpene carboxylic acid, which is a natural insecticide from wild tomatoes, also needs to be clarified. Further-

more the production of phenolic diterpenes from sage and rosemary will also be investigated in the context of the EU project *Terpmed* (see page 19).

A very interesting field is also the connection between metabolism and developmental biology, that could be shown in tomatoes. Wild tomatoes are more robust and resistant than cultivated ones. Their glandular hairs look different and produce different ingredients. An example is the previously mentioned sesquiterpene carboxylic acid, which is an efficient protection against insects for the plants. The obvious question is, are the shape and the ingredients of the trichomes are connected in a certain way?

Or in more specific terms: Does the activation of certain structural genes lead to the activation of certain biosynthesis genes? And how did the trichomes develop in the course of evolution? Understanding the genetic basis of these connections could lead to the development of new tomato species with „designer leaves“, that are more efficient against insects and microorganisms than the currently cultivated, high-yielding but sensitive varieties.

[Sylvia Pieplow]



Trichomes of wild tomatoes (left side) differ significantly from the trichomes of cultivated tomato plants (right side). Furthermore the ingredients are also different in wild tomatoes and promote a higher degree of resistance against insects.

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The building program of terpenes - five carbons at a time

The term terpene was coined 1863 from the German chemist August Friedrich Kekulé and describes the aromatic main components of the turpentine. The resinous substance of pines and other conifers is a mixture of different volatile substances, particularly the fragrant monoterpenes. Terpenes consist of unsaturated carbon chains of different lengths. Their basic component is isoprene, a branched chain of five carbon atoms. Terpenes are arranged of several isoprene units; the number of their carbon atoms is divisible by five. Thus the substances consisting of two isoprene units are called monoterpenes (C_{10}) and compounds consisting of three units are designated as sesquiterpenes (C_{15} ; *sesqui*-means „one and a half“). This is followed by the diterpenes (C_{20}) with 20 carbon atoms, the triterpenes (C_{30}) and tetraterpenes (C_{40}). The smaller the terpene molecules are, the faster they volatilize as odorous substances in the air. With increasing chain length their consistency becomes resinous and wax-like. The main components of essential oils are the volatile mono- and sesquiterpenes, which give the extract a typical aroma. Most terpenes does not exist as extended chains, but form cyclic structures with one or more rings. The closely related terpenoids contain, in addition to carbon and hydrogen, other elements like oxygen. The numbers of carbon atoms can be reduced in terpenoids, therefore the five-carbon-rule is not universal. [Sylvia Pieplow]

Time-of-flight - The new mass spectrometer in the department of Cell and Metabolic Biology

AB SCIEX TripleTOF™ 5600 system is the complicated name of the new mass spectrometer, which will be used in the near future for several research projects in the department SZB. The name TripleTOF™ defines not only the MS device itself, but also describes a very sophisticated technique based on tandem mass spectrometry.

Mass spectrometry is a method to detect the masses of atoms or molecules. Every mass spectrometer consists of three different components: an *ion source*, an *analyzer* and a *detector*. Inside the ion source the substance to be examined is transferred into the gaseous state and electrically charged (*ionized*). Afterwards the positively and negatively charged particles (ions) are accelerated in an electric field in vacuum and „sorted“ by the analyzer according to their ratio of mass to charge.

The detector determines the mass of molecules providing a valuable clue about their identity.

The core of the mass spectrometer is the analyzer, that exists in different versions and various functional principles. The *TripleTOF™* system could also be considered as very sophisticated *time of flight detector (TOF, time of flight)*. It functions based on

the fact, that lighter ions move faster in an electric field than heavier ones. The mass determination involves measuring the time of flight, that the ions need until they reach the detector.

The *TripleTOF™* system includes a new technique, that leads to faster measurements with a high resolution (25 picoseconds per mass; divide one second into 40.000.000.000 parts, and they will each last 25 picoseconds!) A high mass resolution has the advantage that also ions with almost identical masses can be detected separately. Because of the high-speed measurements more informations per time unit can be processed. That means that individual masses can be measured more exactly.



*The AB SCIEX TripleTOF™ 5600 system.
(Source: AB Sciex)*

Structure elucidation

In the SZB department the new mass spectrometer will be used primarily for structure elucidation of various natural products and their biosynthetic and metabolic pathways. „The major focus of our analyses are the phytohormones and their precursors. By using mass spectrometric techniques new biosynthesis pathways of plant hormones shall be clarified“, says **Dr. Gerd Balcke**, scientific employee in the working group *Glandular Trichome and Isoprenoid Biosynthesis*. An interesting field of research comprises primarily the relatively unknown *strigolactones*. It is assumed that this group of plant hormones can inhibit stem branching. Furthermore they promote the association of plant roots with symbiotic fungi like *mycorrhiza*.

Another area of research comprises the so-called *isoprenoids* and their biosynthesis. They are produced in the glandular hairs of tomato plants (trichomes). This group of secondary plant metabolites is very heterogenous and their biological functions are still largely unknown. Isoprenoids can have antimicrobial activity, but they also serve as odorous and flavouring substances and are major parts of

the essential oils produced by plants. A third application is the analysis of plant energy metabolic pathways by mass spectrometric detection of the energy-rich compounds with bound phosphate residues or carboxyl groups and the analysis of the corresponding patterns.

Dynamic Flux Labeling

In the SZB department a new procedure called *Dynamic Flux Labeling* has been established. In cooperation with the Weinberg-Campus-located company *Elektrochemie Halle GmbH* (ECH) plant boxes made of Plexiglas were developed, that can be used for the cultivation of tomato plants. In this enclosed space the plants are treated over a defined period with carbon dioxide (CO₂), that contains 99% naturally occurring heavier, but not radioactive, **¹³C carbon atoms** (isotopes).

These ¹³C atoms differ from the „normal“ ¹²C atoms in that they contain one more neutron in the nucleus and therefore are heavier. This difference is very advantageous for mass spectrometric studies.

In a *preculture* the plants can only use ¹³C-labeled carbon dioxide (¹³C-CO₂) for photosynthesis. The

¹³C-isotope is introduced into the carbon compounds of primary metabolism and afterwards into single biosynthesis pathways of the secondary metabolism. In the following *main culture* the plants can metabolize normal ¹²C carbon dioxide. ¹²CO₂ is integrated in all biosynthesis and metabolic pathways and the involved compounds are „lighter“. With the help of mass spectrometry the occurring ¹³C compounds can be differentiated from the ¹²C compounds and detected.

In this so-called *inverse labeling* approach, stress factors like phosphate deficiency, drought and infections should be initialized simultaneously and investigated metabolically by the subsequent change from ¹³CO₂ to ¹²CO₂. The establishment of a system that facilitates the labeling of plants with stable isotopes and the use of MS-based metabolomics as analysis method leads to a lot of new links to other research groups at the institute.

[Sylvia Siersleben]

Diwali at the IPB - indian students celebrate their Festival of Lights

An aura of Bollywood blew through the corridors of the IPB at the end of October 2011, as several indian students from Halle celebrated their traditional Festival of Lights in the Kurt-Mothes-Saal. The party was organized by one of our indian colleagues. **Dinesh Dhurvas Chandrasekaran** comes from the south indian city Puducherry. At the moment he is working on his Ph.D. thesis in the department **Molecular Signal Processing**.



The event, which is known as *Diwali* in Hindi, began with a festive ceremony at noon with candle lightning in the Kurt-Mothes-Saal and devotional songs. In the course of the festival, which was also well visited by students and academics of other nations, cultural performances, games and traditional indian food were offered. A special highlight of the evening was an indian solo dance from another Ph.D. student of the IPB. **Anshu Kathri** from New Dehli studies pharmacy and wants to do her Master thesis at the IPB. She also works in the department of Molecular Signal Processing.

The event has a lot of multicultural flair and was worthy to be mentioned in the *Mitteldeutsche Zeitung*. The article from 2011-31-10 can also be read in last year's *IPB press review*. [[Sylvia Siersleben](#)]

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Diwali - the background

Diwali is Hindi for something like „arrangement of lights“. The Festival is usually held over several days and is celebrated in Hindu states like India, Sri Lanka, and Nepal. It always starts on the fifteenth day of the Hindu month Kartik, that is at the end of October or at the beginning of November according to our calendar system. The central message of the Light Festival is the victory of good over evil or in other words light over darkness. Because of its positive character it can be compared to our Christmas. *Diwali* is celebrated in various ways in the different indian regions and can range from one up to five days. An important tradition of the festival is the candle lightning. The lights are thought to guide the ghosts of the departed into the land of eternal happiness according to Hindu faith. During *Diwali* jumping crackers and fireworks can be ignited to welcome the new year very similar to our New Year's Eve.

Terpmed meeting in Halle

Small but notable was the meeting, that took place on 3 and 4 November in the context of the european cooperation project *Terpmed* at the Leibniz Institute of Plant Biochemistry in Halle. Seventeen scientists from five different nations met in our halls, to pool information and to communicate the latest results. Under the motto *Plant Terpenoids for Human Health* *Terpmed* was initiated and coordinated in the year 2009 by Prof. Alain Tissier as a project of the 7th EU framework programme. It is funded with 2,7 millions euros and runs until the end of the year 2013.

Thanks to Alain Tissier the institute is involved in the cooperation since August 2011 with a subproject with financing of 206.000 euro. In addition to the IPB seven other research groups and companies from the Netherlands, Spain, Greece, Serbia and the USA will collaborate in *Terpmed*. The aim of the cooperation is to establish high-throughput analyses for the detection, isolation and characterization of bioactive compounds by using me-

tabolomics and genomics methods. These screening methods aim to identify the most interesting compounds and produce them afterwards in plant trichomes or via fermentation.

Terpmed focuses particularly on *terpenes*. This group of substances comprises 8000 known compounds and approximately 30.000 closely related terpenoids and is therefore one of the largest and most heterogeneous substance classes of secondary plant metabolites.

Inside of the network concentration is focused on two different types of terpenes. On the one hand the *sesquiterpenelactones*, that are very wide spreaded in the aster family. Some possess a migraine-inhibitory and anti-inflammatory activity and have therefore been used in traditional medicine for centuries. Of special interest is the identification of the biosynthesis pathway of *parthenolide*. Parthenolide is a sesquiterpenelactone from the feverfew (*Tanacetum parthenium*) that is current-

ly discussed, in addition to its anticonvulsant and anti-inflammatory activity, as a potential anti cancer drug for the treatment of the acute myeloid leukaemia.



Feverfew belongs to the aster family and is in Germany also known under its common names Falsche Kamille or Fieberkraut. Initially it is native to the eastern Mediterranean Area, but it was brought to Central and Western Europe a long time ago, where it was grown as ornamental or medical plant. Meanwhile it occurs only wild as garden weeds or near fields in our latitudes. (Photo: www.tanacetum.de)

A second subproject focuses on *phenolic diterpenes*, that occur, among other contexts, in essential oils of rosemary and sage. A major focus is *carnosic acid*, a natural antioxidant, that serves as a preservative and flavouring substance in meat products, oils, fats, flour, milk powder, fish products, sauces and animal feed. Dried sage or

rosemary leaves contain between 1,5 and 2,5 percent carnosic acid. The planned identification of the biosynthesis pathways of carnosic acid and related compounds, including the corresponding biosynthesis genes, shall lead to the breeding of plants with a higher amount of carnosic acid or to establish a biotechnological production of carnosic acid by using bacteria or yeast cells.

[Sylvia Pieplow]



Small plants with an effect not to be underestimated. Both rosemary (left) as well as sage (right) belong to the mint family and originate from the Mediterranean Area. Whereas they grow as wild plants there, they are cultivated often as ornamental plants and herbs around here. Because of their antibacterial, antiseptic and antimycotic properties both plants are often used as medicinal products in naturopathy. (Pictures: www.gewuerzlexikon.de; www.teeundwhiskey.de)

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Parliamentary evening

The end of the oil boom, the resource competition with emerging countries and the increasing challenges because of climate change have sharpened the focus yet more on agricultural and plant sciences. The European Union has approximately four percent of global cultivation area. Thus, for industrialized Germany, value-added bioprocesses for the manufacture of high-priced products is an important topic for the preservation of prosperity. This includes production of particularly high-quality food, renewable raw materials and chemical natural products that serve as a basis for the development of drugs, cosmetics and plant protection products. With the *Initiative Bioeconomy 2030* the government has given an important political impulse to meet those challenges also on the research level.

„Why do we do plant research? Would it not be more important to find a cure for cancer?“, asked the Leibniz Institutes of Plant Biochemistry (IPB) and of Plant Genetics and Crop

Events



Plant Research (IPK) provocatively during this particular occasion, to which state and federal politicians had been invited to a parliamentary evening.

The event on the initiative of the Ministry of Science and Economy took place on the 12 December 2011 in the state in Berlin. Under the motto: „Plant-based Bioeconomy - Material Production and Food Security“ the ~80 participants awaited an ambitious program of experiments, talks and finally a panel discussion.

The lectures in particular provided a substantial increase in knowledge, because the different aspects of plant sciences were discussed from various perspectives. The topics ranged from the consequences of increasing prices of raw materials and food (Prof. Harald von Witzke, Humboldt University Berlin, Chair for Agricultural Economics) over the preservation and research of biological diversity in gene libraries (Prof. Andreas Graner, IPK Gatersleben) to plant-based active ingredient

research (Prof. Ludger Wessjohann, IPB Halle).

The importance of basic research for the transfer of knowledge to economy was represented very impressively from the perspective of a plant breeder (Dr. Günter Strittmatter, KWS SAAT AG, Einbeck) and a flavour manufacturer (Dr.

Jakob Ley, Symrise AG, Einbeck). The partly divergent demands for freedom of research and practical relevance were finally discussed in a panel discussion, that was guided by the cluster manager of *Integrated Bioindustry* of the



Panel discussion during the Parliamentary evening in Berlin with

Prof. Andreas Graner (Managing Director of the IPK), Marco Tullner (State Secretary of the Ministry of Science and Economics of the State of Saxony-Anhalt), Prof. Harald von Witzke (Chair for Agricultural Economics at the Humboldt University Berlin), Dr. Thomas Niemann (moderation, Business Promotion Agency Hessen), Prof. Ludger Wessjohann (Managing Director of the IPB), Dr. Jakob Ley (Symrise AG Holzminden) and Dr. Günther Strittmatter (KWS SAAT AG, Einbeck) from left to right.

association for economic promotion of Hessen, Dr. Thomas Niemann. In a convivial get-together with a lot of further conversations and contacts the evening finally ended. [\[Sylvia Pieplow\]](#)

Events



Leucorea 2012

In an institute like the IPB, where biologists, biochemists, chemists, pharmacists and bioinformaticians work together, synergies and creative momenta can occur, that lead often to new points of view and interdisciplinary research approaches. However, the reactive clash of different ideas and the use of various technical terms also brings the risk of comprehension problems between the individual expert groups. Therefore the IPB invests regularly and gainfully in institute communication and in the exchange and understanding between the working groups and departments. Every two years the whole scientific staff of the IPB, from the diploma student to the department leaders, meets for a conference in Wittenberg.

This year's meeting, took place on 5 and 6 March and was primarily important for the exchange of current research topics and new internal collaborations. Talking about individual research results is not possible in this context, but a general overview and interdisciplinary approaches as well as interesting notes are discussed.

The lecture of professor Henning Scheich was more concerned about politics than science. He presented - by means of *theoria cum praxi* - the basic concept of the Leibniz Association. The talk of the former director of the Leibniz Institute for Neurobiology was a novelty at the Leucorea meeting in Wittenberg. His statements to history, perspectives and self-conception of the Leibniz Association were considered very informative.

Expected with tension were the talks of our independent group leaders Marco Trujillo and Nico Dissmeyer. Both were in Wittenberg for the first time and reported on the establishment of their projects concerning ubiquitin and ubiquitin ligases - enzymes that play an important role in the degradation of proteins and during all physiological processes in plants, especially defense against pathogens.

Steffen Neumann, head of the working group Bioinformatics and Mass Spectrometry argued, that the metabolomics activities should be bundled in a new platform. Ac-

cording to his opinion organized workshops and seminars could lead to new and cutting-edge metabolomic projects.

Professor Wessjohann pleaded for a wider and more directed use of the extensive libraries of the



Nico Dissmeyer during his discussion. The session was chaired by Prof. Wessjohann.

Events



department Bioorganic Chemistry (NWC). Thus, the department possesses notable collections of above 2000 plants and about 3000 fungal species, that are fresh or dried waiting for their processing or further investigation. Even more impressive and in the future available for all, is the structural database with about 1,3 millions of chemical structures. The NWC substance library contains approximately 14.000 registered substances or mixtures of substances. 9700 of these samples were structurally investigated, about 1000 are unknown. The rest consists of collected extracts and fractions. The available informations could be used for discovery and identification of unknown bioactive products found during the investigation of biological questions.

Very successful in the field of services for the whole institute were the leaders of the working group Spectroscopy, Andrea Porzel and Jürgen Schmidt. In the area of NMR spectroscopy 8900 spectra were produced in the last two years. As a result

the structures of about 600 unknown substances and 400 metabolites of metabolomics projects could be identified. In the field of mass spectrometry different fungal and plant metabolites were found, among them alkaloids, vitamin D derivatives, coumarines and polyprenols. Plants preferentially investigated were St. John's Wort, hop, nettle and liquorice. The latter were flavorfully introduced to the auditorium. During the lecture of Andrea Porzel on the ingredients of the liquorice, one could also eat it.

The head of the working group Computational Chemistry, Wolfgang Brandt explained impressively that one can reduce the number of working steps by using computer models for the identification of active compounds. Based on the hypothesis that inhibition of the Poly(ADP-ribose) polymerase (PARP) makes plants more resistant to drought stress, he and PhD student Peter-Paul Heym set out to find an inhibitor to that



Wolfgang Brandt during his speech on PARP inhibitory substances.

enzyme. This search was carried out firstly *in silico*, that means completely virtual only with the help of powerful computers. The PARP enzyme is involved in various processes of cell division and DNA repair mechanisms and uses NAD⁺ (Nicotinamide adenine dinucleotide) as a substrate.

Thus, a PARP inhibitory substance should have binding properties similar to NAD⁺ but not its activity. According to binding studies, the inhibitor

should have a nicotinamide-like structure for binding to the active site and inhibit the enzyme reaction there.

The computer selected 15.000 out of 1,2 million compounds from the database, that matched the given structural properties. With these potential pharmacophores virtual binding studies on enzyme models were made. The result were 73 candidates, that can theoretically bind to the active site of PARP. Only then one to leave the virtual world of the computer to test the 73 candidate substances in order to find a PARP inhibitor through real experiments. Aside from biochemical activity studies with the isolated enzyme (performed by Silke Pienkny), Torsten Geißler established a test with duckweed, that were firstly exposed to drought stress and treated with potential inhibitors afterwards. Half of the candidate substances were identified as active compounds, that could prevent the damage of the duckweed through drought to various degrees,

an excellent hit rate of 48 percent. The most promising substances are currently being tested on *Arabidopsis thaliana*. A publication is on the way.

Finally, organizational issues regarding important dates in the near future were discussed. Thus, the employees of the institute look forward to two evaluations of great relevance.

The external evaluation by international groups of evaluators is the highest instrument of quality assurance by the Leibniz Association. It is carried out for each institute by the senate of the Leibniz Association every seven years. Independent scientists as well as representatives from the federal and state governments evaluate the national and social relevance of the institutes. As part of this process scientific persuasion, conclusive research approaches, cooperations, international visibility, promotion of young scientists and gender equality are judged. On the basis of this assessment the senate submits a statement to the Joint

Science Conference (GWK), that decides together with the federal and state governments the further support of the evaluated institute.

The evaluations of the Leibniz Association belong to the strictest assessments among the non-university scientific communities. The external evaluation for the IPB will take place in July 2013. The Planning and preparations for the evaluation start in summer this year.

The external evaluation is preceded by an internal scientific assessment by the Scientific Council in September 2012. Here also, informations about publications, citation analyses, international ambitions, promotion of young researchers and much more have to be prepared and brought together.

[Sylvia Pieplow]

Events



Career Day at the IPB

Our trainers got positive feedback for the Career Day at the IPB. The institute received 65 visitors on 14 March 2012; all of them pupils in school years 7-10, who want to inform themselves together with their parents about

the trainee programs at the institute. During the guides through a chemical lab and various information counters our guests could get insight into the different fields of activity at the IPB. The event received very positive feedback.

Career Day is initiated by the Federal Employment Centre every year and takes place nationally at numerous training companies and institutions.

Since 1993 the IPB trains young people in different professions with great commitment. Thus, approximately ten trainees pass continuously their education in the professions gardener for the cultivation of ornamental plants, chemical laboratory assistant, office administrator and IT specialist for system integration. The result is quite good: So far, 36 young people complete their training successfully, 25 of them were employed on limited contracts and nine former apprentices work now indefinitely at the institute. [\[Sylvia Pieplow\]](#)



Our trainers at the IPB (from left to right): Alexandra Burwig (office administrator), Martina Lerbs (chemical laboratory assistant), Kerstin Balkenhohl (office administrator), Christian Müller (gardener) and Holger Bartz (IT specialist).

Position paper of the Scientific Council about the requirements of quality assurance of PhD theses in Germany

At the end of last year the Scientific Council published a position paper on the topic: „Quality assurance of the PhD theses in Germany“. With regard to recent events of scientifically inappropriate behaviour it addresses some critical points in the German dissertation practice and submits suggestions for its improvement. Guiding for the paper is the question about the assurance of the scientific quality of PhD theses in Germany. Therefore the Scientific Council proposes measures, that should avoid attempts to defraud and generally secure the level of dissertations in Germany.

1. The strengthening of the collegiate responsibility

The Scientific Council emphasizes the importance of the collegial support of PhD students. It proposes the involvement of a *thesis committee*, that shall accompany the PhD students in terms of content, shall serve as a contact person and as mediator between the student and the supervisor.

2. Supervisory agreements

The Scientific Council recommends the comprehensive introduction of the supervisory agreements between the PhD students, supervisors and the thesis committee. This shall determine mutual connections like defined time periods for regular feedback on PhD work. This improves the status of the PhD student and increases the quality standards regarding the supervising.

3. Student-tutor relationships

The Scientific Council emphasizes, that mentoring university professors should perform their tasks responsibly. The supervision of a PhD student is not to be underestimated because its very time-consuming and makes a significant contribution to the quality of the doctoral thesis.

4. Integration of external PhD students

The „external PhD thesis“ means, that the PhD student does not work at the university directly, but outside from the scientific system (e.g. indus-

try). This group of graduates requires increased attention by the university. The Scientific Council recommends greater involvement of the PhD students in an structured PhD program, improved integration into the working group of the supervisor and the possibility of regular participation in meetings and conferences.

5. Handling of scientific inappropriate behaviour

Above all, good scientific practice means the correct handling of data and the traceability of scientific results. The falsification or the elimination of unwanted results as well as manipulation of depictions and figures is, according to the German Research Foundation, scientifically inappropriate behaviour. PhD students should be aware of standards for correct handling of data and their depiction when they complete a dissertation project. Furthermore the Scientific Council recommends the implementation of plausibility checks of the data by the supervisors. The delivery of documented primary data

should be a requirement for the assessment of the PhD theses. In addition, the topics of plagiarism, citations and intellectual property issues should be discussed as early as possible during studies.

[6. Independent Assessments](#)

The Scientific Council considers it necessary to increase the independence of assessments and to choose evaluators who are familiar with the topics of the PhD theses. To exclude possible prejudices, the supervisors of the individual dissertations should not be the reviewers. Furthermore, assessment should exclusively be done by an evaluator, who is determined by the thesis committee beforehand. The thesis reports should refer at their core to the assessment of the research achievement, describe the scientific progress of the work and evaluate it in an international comparison.

[7. Modification of the grading scale](#)

In Germany the significance of the grading is often limited because dissertations are rated with the

highest or the second grade (*summa cum laude* or *magna cum laude*) in many cases. According to the Scientific Council, the grading should be converted to a binary scale. Thus, the PhD examination procedure will be rated either with „passed“ or with „with praise/excellent“.

[8. Definition of standards with regards to content](#)

The particular formulation of PhD standards with regards to content is only possible if subject-specific. The Scientific Council emphasizes, that processes of recruitment and assessment at German universities are much more important than the definition of abstract minimum standards with regards to content. Furthermore, the Scientific Council opposes the *viva voce* and promotes the PhD thesis defense as examination method, because it focuses more on the scientific qualification of the PhD students.

[9. Standards of publication-based PhD theses](#)

The opportunity to write a publication-based dissertation should be fixed in all PhD regulations at universities in the future. However, the Scientific Council emphasizes, that a publication-based dissertation also has to be an independent achievement of the PhD student. That means, that the thesis should contain substantial content over and above the publication. A merely additive summary of single publications is not sufficient for a PhD thesis and is therefore refused. In addition, individual achievements in a co-authorship of the PhD student have to be clearly defined and indicated. The Scientific Council recommends the development of subject-specific standards for publication-based PhD theses and to anchor them in the PhD regulations or in supervisor agreements.

10. *Scientific standards of medical dissertations*

According to the Scientific Council, the scientific level of the course-related medical doctoral thesis does not conform with the standards of other scientific dissertations. Moreover, in many cases uniform requirements do not exist within the subject. The Scientific Council recommends to confer the doctoral degree exclusively to medical dissertations that make a substantial contribution to the scientific progress and the results of which are published in an internationally recognized journal.

[Sylvia Siersleben]

The Scientific Council - facts and background

The Scientific Council is the most important scientific policy advisory council in Germany. Its function is the advice and support of the federal and state governments concerning the content and the structure of the universities, science and research.

The Council was founded by the federal and state governments on 5 September 1957, after leading scientists and politics recommended its foundation since the mid-1950s. Since this foundation the Scientific Council has characterized a number of important stages during German scientific policy development. This includes, above all, the development of the science and university system in the 1960s and 1970s, the following scientific and university policy reform stage upon decreasing funds inflow and finally, during reunification, the evaluation of a number of non-university research institutes of the former GDR and the formulation of comprehensive recommendations for their future structure.

The Scientific Council consists of two equal commissions. The *Scientific Commission* comprises 24 scientists and 8

representatives of public life, that are appointed by the Federal President. The *Administrative Commission* consists of one representative of the 16 federal states as well as 6 representatives of the federal government. The Scientific Council is represented externally by its chairman, who is elected for a one-year term. The working program of the Council is decided annually in a plenary meeting, which is implemented by working groups of the two commissions.

The tasks of the Scientific Council include the regular evaluation of non-university research institutes, advisory service with regard to research funding, the accreditation of private and ecclesiastical universities and since 2005, together with the German Research Foundation, the implementation of the *Excellence Initiative*, a program for the promotion of science and research at German universities. [Sylvia Siersleben]

Miscellaneous



Worthwhile BBC documentary series are shown at the IPB

The *Private Life of Plants* is the original title of the six-part BBC series, that is shown for a short time in the Kurt-Mothes-Saal of the IPB. The nature documentary is a production of the British natural scientist and film producer *David Attenborough* from 1995 and shows studies of growth, movement, reproduction and survival of plants.

The highlight of the series is the use of a number of time-lapse sequences. It gives excellent insights into plant life processes, that would otherwise be invisible to human eyes. Because of its unique images the series won the *George Foster Peabody Award* in 1995. The award is given annually for outstanding achievements in TV and radio production in the USA.

The idea to show the documentary series at the IPB was initiated and implemented by our PhD students, but it is open for all employees at the institute.

The early evening movie time at the IPB is orga-

nized by Dinesh Dhurvas Chandrasekaran, PhD student in the department Molecular Signal Processing (MSV). He also sponsored the film material. Two episodes of the series have already been shown. In the upcoming third episode, interested visitors can look forward to a contribution to plant reproduction mechanisms.

[Sylvia Siersleben]



New IPB website

The IPB website will be reworked and updated this year. The Hamburg agency *Avonis* was entrusted by the IPB with this work. The company is specialized in web conception and design and has been in charge of our internet presence since January this year.

The *Web relaunch* comprises, above all, the restructuring of our website architecture. Thus, the navigation will be reworked and should be more clear and focused on specific target groups. Furthermore, the content of our website shall be revised. It should be more clearly presented and the research topics described intelligible to all, so that non-scientists will visit our websites more often and feel invited to stay longer.

An additional step comprises the recreation of our corporate design including the modernization of our logo and the colour accentuation of our websites. Besides that, layout templates for our offline communication media like letterheads and business cards, as well as annual reports, posters and

lecture slides will be provided. Also very important is the technical implementation of our website. The obsolete operating software (*Content Management System Typo3*) will be converted to the latest version. Furthermore, the external database supported contents, like our literature database, calendar of events and the employee directory will be updated and provided with new functionalities.

At the moment Avonis are developing the new design of our websites and communication media. This will be presented at the IPB at the beginning of May. In parallel they are proceeding with the technical implementation.

The new IPB website will probably become fully functional in summer this year. [\[Sylvia Siersleben\]](#)

Moss expert Dr. Siegfried Huneck died

Mosses and especially lichens were always of particular interest for Dr. Siegfried Huneck. Throughout his life these special plants stirred his scientific passion.

On 9 October 2011, Siegfried Huneck died at the age of 83.

With his projects concerning the isolation, structural identification, and synthesis of active compounds, primarily of lichens and mosses, the well recognized natural products chemist contributed to the good reputation of our institute between 1969 and 1993. His extensive collection of lichens is offered in the botanical museum in Berlin. Three newly discovered lichen species are named after him: *Opegrapha huneckii* (Follmann & Klement, 1970), *Geastrum huneckii* (Dörfelt 1981) and *Perusaria huneckiana* (Feige & Lumbsch 1993). His moss collection comprises 950 species. As high throughput publisher, he leaves over 400 scientific original publications and books, of which he wrote



Siegfried Huneck worked several years as chemical-technical assistant in road construction before he was allowed to study. His trademark was a grey lab coat.

68 during his retirement. His last book was published in 2010. Under the title: „10.000 Kilometer unterwegs im Herzen Asiens * Expeditionsberichte aus der Mongolei.“ he wrote about his expeditions in the Far East.

Miscellaneous



Siegfried Huneck was an excellent scientist for the IPB, demonstrated by his explicit naming in the evaluation of the institute on 5 July 1991 by the Scientific Council.

The apparently impressed evaluators wrote: „Special mention should be made of the original work about the ingredients of lichens and mosses, which were made by an excellent scientist.“

[\[Sylvia Pieplow\]](#)

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