

Press Release

Novel Bio-plastics from sugar beets & Co.

Technology leader BRAIN supplies Degussa with novel biopolymer producing microorganisms

Zwingenberg and Hanau-Wolfgang, October 5, 2006 – German Biotechnology company BRAIN AG and Degussa AG, a world leader in specialty chemicals, successfully completed a collaborative research and development project in the area of white biotechnology. Aim of this cooperation was the supply of novel microorganisms for the production of novel “biological plastics” starting from sugar beets, sugar cane and other renewable primary products. Following this strategy Degussa aspires to achieve an independency of petrochemical raw materials. In addition, environmentally compatible production processes will be developed.

Water soluble polymeric thickeners are of high economical value and widespread in industries like the food- and cosmetics industry. Other technical applications include uses as drilling adjuvants and flocculants in water treatment. The annual world demand for these products is in the order of several 100.000 metric tons per year. Currently often polyacrylates and their derivatives are used. Being comparatively cheap these materials also show good application properties. However, they fall short of being environmentally benign as they resist biodegradation. Furthermore, polyacrylates are made from diminishing and expensive petrochemical raw materials.

This is the motive to accelerate the search for biological polymers in alternative sources as in technical applications these polymers still are grossly underrepresented. The goal of the project under leadership of Degussa and under involvement of BRAIN was to establish a competitive biotechnological route for the production of microbial biopolymers as water soluble thickeners. The project is financially supported by the German Federal Ministry for Education and Research (BMBF) in its program for sustainable bioproduction („Nachhaltige Bioproduktion“).

Within the project BRAIN AG screened its comprehensive proprietary BioArchives and additionally performed extensive multi-focused screening activities in diverse habitats (e.g. fruits, diverse foods, marine- and sugar rich environmental habitats) to come up with numerous biopolymer producing microorganisms. These were evaluated

Contact:

BzRzAzlN AG
Dr. Jürgen Eck
CSO
Darmstädter Str. 34-36
64673 Zwingenberg, Germany
Tel.: +49-6251-9331-0
Fax.: +49-6251-9331-11
E-Mail: je@brain-biotech.de
www.brain-biotech.de

Degussa AG
Dr. Andreas Karau
Head of Project House Pro-Fern
Rodenbacher Chaussee 4
63457 Hanau, Germany
Tel.: +49-6181-59- 40 69
Fax: +49-6181-59-29 61
E-mail:
andreas.karau@degussa.com
www.degussa.com

and then transferred to Degussa for additional product analysis and viscosity evaluation. The microorganisms provided by BRAIN AG displayed a remarkably high frequency of hits despite a challenging performance profile set up by Degussa. The EPS producing microorganisms are currently processed at a technical scale and evaluated for market suitability and production.

Another focus of the cooperation between BRAIN and Degussa was the optimisation of a producer strain for the synthesis of scleroglucan, another innovative biopolymer with manifold technical applications.

„Through identification and implementation of novel polysaccharides we want to improve the economics of existing industrial production processes and at the same time expand our product portfolio”, says Dr. Volker Sieber, Head of the BMBF-project at the Project House ProFerm at Degussa. “The intensive cooperation in this research and development program provides access to novel technologies and speeds up the transition from conceptual status to production process”, explains Dr. Andreas Karau, Head of Project House ProFerm. „The identification of numerous novel biopolymer producing microorganisms through rational bioprospecting is another proof for the increasing importance of industrial biotechnology for innovative developments”, says Dr. Jürgen Eck, CSO at BRAIN AG. He adds „We are pleased that in the concluded cooperation we could provide Degussa with many efficient producer strains for technical processes.”

Besides Degussa and BRAIN an interdisciplinary team uniting biological and chemical expertise is involved in the project. Included were the academic partners Prof. Dr. Alfred Puehler from the University of Bielefeld, Prof. Dr. Ulf Stahl from TU Berlin as well as the SME´s INSILICO biotechnology in Stuttgart and DASGIP in Juelich.

About BRAIN AG:

BRAIN Biotechnology Research and Information Network AG is an innovative company focusing on the discovery and development of novel enzymes and bioactives. Its novel EvoSolution® technology platform combines the untapped biodiversity of microorganisms and plants with modern methods of molecular biology. The company located in Zwingenberg within the research and industrial region Rhine-Main-Neckar has at its disposal a comprehensive BioArchive with over 120 million genes of unique and non-cultivable microorganisms. Based on these resources BRAIN identifies novel technical enzymes for biotechnological production and synthesis processes (biotransformation) in the chemical and life science industries as well as new bioactive substances and lead candidates for the pharmaceutical and cosmetics market, and develops the basis for their large-scale industrial production. The company, which was founded in Darmstadt in 1993, currently employs a staff of 48.

About Degussa AG

Degussa is a multinational corporation consistently aligned to highly profitable specialty chemistry. In fiscal 2005, 44,000 employees generated sales of € 11.8 billion and operating profits (EBIT) of € 940 million, making it Germany's third-largest chemical company and the global market leader in specialty chemicals. This is summed up by our claim "creating essentials".

Goal of the Project House ProFerm is to enable the potentials of white biotechnology meaning the industrial application of biotechnology. A major focus is the fermentative production of special chemicals.

Within the Project House ProFerm, which was founded in January 2004, research, planning and application of fermentation processes as well as the respective micro-organisms play a major role. ProFerm's portfolio comprises projects focussing on new products or on novel processes and methods.

The ProFerm team offers all key competencies, including classical strain development, rational metabolic engineering and process engineering. Additional support is realised through a strong cooperation network with partners from other Degussa units and also other companies and universities.

Editorial note:

Images are available at:

<http://www.degussa.com/degussa/en/press>

http://www.brain-biotech.de/news_pictures.php