



## Minutes of the

The 6th International Symposium Plant Protection and Plant Health in Europe

### **“Micro-organisms as agents between fertilization and plant protection”**

13 – 14 May 2014 Braunschweig, Germany

The symposium »Plant Protection and Plant Health in Europe« (PPPHE) is organised jointly by the Deutsche Phytomedizinische Gesellschaft e.V. - the German Scientific Society for Plant Protection and Plant Health r.S. (DPG, [www.phytomedizin.org](http://www.phytomedizin.org)), the Federal Research Institute for Cultivated Plants - Julius Kühn- Institut (JKI, [www.jki.bund.de](http://www.jki.bund.de)) and the Division Phytomedicine of the Faculty of Agriculture and Horticulture of the Humboldt University of Berlin ([www.hu-berlin.de](http://www.hu-berlin.de)). It has been held at the Julius Kühn-Institute, Messeweg 11-12, 38104 Braunschweig. 62 delegates of regulation authorities, science and industry from 12 countries participated in the workshop.

#### **Background and scope of the symposium**

Micro-organisms are widely used as agents in plant production to guarantee the growth of healthy plants by direct or indirect interactions with harmful organisms and by avoiding malnutrition.

Recently, most of these micro-organisms used in plant production are regulated under the legal framework of the plant protection legislation (EC Reg. 1107/2009) or are placed on the market following national rules, e. g. the national Fertilizers Acts.

The recent fertilizer regulation (Regulation (EC) No 2003/2003) does not regulate micro-organisms. Because of the intention of the European Commission to revise this regulation to harmonize the legislation of all fertilizer materials (organic substances are not yet regulated in Regulation (EC) No 2003/2003), the question arises, whether micro-organisms should be regulated under the fertilizer regulation at the same time.

Diverse proposals exist to include micro-organisms in the group of so called “biostimulants”.

Definitions of biostimulants vary greatly, e. g.

1. The European Biostimulants Industry Consortium (EBIC) defines

*“Agricultural biostimulants include diverse formulations of compounds, substances and other products that are applied to plants or soils to regulate and enhance the crop’s physiological processes, thus making them more efficient. Biostimulants act on plant physiology through different pathways than nutrients to improve crop vigour, yields, quality and post-harvest shelf life/conservation.”*<sup>1</sup>

2. In an ad hoc study for the European Commission, du Jardin defines

*“Plant biostimulants are substances and materials, with the exception of nutrients and*

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<sup>1</sup> EUROPEAN COMMISSION - Directorate-General for Enterprise and Industry, 2012: Study on options to fully harmonise the EU legislation on fertilising materials including technical feasibility, environmental, economic and social impacts; Contract number 30-CE-0392420/00-18

*pesticides, which, when applied to plant, seeds or growing substrates in specific formulations, have the capacity to modify physiological processes of plants in a way that provides potential benefits to growth, development and/or stress response*"<sup>2</sup>.

3. Arcadia International®, recognized as experts by several European Commission Directorate-Generals for agriculture and food related activities, proposed the following definition

*"A plant biostimulant is any substance or microorganism, in the form in which it is supplied to the user, applied to plants, seeds or the root environment with the intention to stimulate natural processes of plants benefiting nutrient use efficiency and/or tolerance to abiotic stress, regardless of its nutrients content, or any combination of such substances and/or microorganisms intended for this use."*<sup>3</sup>

On this background the aim of the symposium was:

- estimate the importance of micro-organisms for plant production in the future
- discuss the classification of micro-organisms following the concepts of either "intended uses" or "mode of action"
- describe crucial organizational pre-requisites and data requirements for appropriate registration and placement on the market

## **Results**

### **Importance for the market**

The delegates widely agreed that the importance of micro-organisms (MO) for plant production will increase.

*Advantages of MO can be:*

- specific interactions with target organism
- biodegradability
- harmful residues unknown so-far
- compared to chemical pesticides sometimes cheaper when locally produced
- more effective than chemical pesticides in the long-term is expected

*Disadvantages of MO can be:*

- often slow speed of action (thus making them unsuitable if a pest outbreak is an immediate threat to a crop)
- often variable efficacy due to the influences of various biotic and abiotic factors (since biopesticides are usually living organisms)
- the use of MO may demand special skills

The usefulness of MOs as fertilizer agents was critically discussed. The efficacy would severely depend on the actual growing conditions. The experts highlighted that stability of efficacy would play a major role for the future placement of products on the market (fertilizer agents and plant protection). Much more research should be financed by the stakeholders of product development.

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<sup>2</sup> P. du Jardin, Report on AD HOC STUDY ON BIO-STIMULANTS PRODUCTS, Contract 30-CE0455515/00-96, 2012

<sup>3</sup> <http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=12337&no=5>

It was pointed out that MO as plant protection products are no longer niche products for small enterprises, while MOs as fertilizer agents still are produced and introduced by small companies. All delegates agreed that a registration of products is a kind of quality certification for the products.

### **Classification of micro-organisms as plant protection or fertilizer agents**

Products containing MO as plant protection products are basely regulated by the Regulation (EC) No 1107/2009. In the preamble it is described: "Recital (8)...The purpose of this Regulation is to ensure a high level of protection of both human and animal health and the environment and at the same time to safeguard the competitiveness of Community agriculture...". Some delegates pointed out that, therefore, the regulation would be risk-oriented and would not be relevant for MO products which, e. g., might traditionally be used or be assumed as low-risk-products *per se*. Other experts stressed that the recognition as low risk product should be the outcome of an approval. They recognized that definition of low risk products is still in development. Overall, regulation would assure the "quality certification" as desired above.

In the recent fertilizer Regulation (EC) No 2003/2003 MO are not regulated. The discussion on the definition of biostimulants and the wish of some parties to include MOs as fertilizer agents in the Fertilizers Regulation, rises conflicts between the Regulation (EC) No 1107/2009. This was recently stressed by Arcadia International<sup>4</sup> and International Biostimulant Stakeholder Meetings<sup>5</sup>.

The delegates discussed the definition suggested by Arcadia International (provided above as no 3).

Regulators pointed out that the definition of biostimulants is mainly based on the stimulation of "natural processes" in the plant. However, in the Regulation (EC) No 1107/2009, this mode of action is addressed as well (please see Article 2, 1, b). There, the definition of plant protection products applies to products, ..."influencing the life processes of plants, such as substances influencing their growth, other than as a nutrient;". Therefore the question arose whether MOs can really act as a nutrient.

At this point the discussion focused on the mode of action of MO. All experts agreed that the Regulation (EC) No 1107/2009 clearly addresses to direct control of pathogens. This is specified in the Regulation (EU) No 283/2013 (Part A, Section 3, 3.2) where mainly functions can be selected with direct mode of action against pathogens. Only the function "others (specify)" opens the opportunity to integrate indirect modes of action.

It seemed to the delegates that the expression "substances influencing their growth" would have been thought as opening clause for the inclusion of chemical phytohormones. Therefore it was recommended to clarify Article 2 of the Regulation (EC) No 1107/2009.

Furthermore, scientists highlighted that the demand of Regulation (EC) No 283/2013 Part B 2.2.2 "The principal mode of action shall be indicated" should be discussed from a biological

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<sup>4</sup> <http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=12337&no=5>

<sup>5</sup> <http://www.informa-ls.com/event/biostimulant>

point of view in more detail on further meetings. It could be, the delegates said, that the mode of action of e.g. plant growth promoting MO can be manifold and may lead to enhanced stress tolerance or even to induced resistance.

The conclusion drawn from the discussion was: Neither the definition of biostimulants recently under discussion seems to justify the general inclusion of MO as fertilizer agents under the fertilizer regulation, nor their predominantly indirect modes of action would justify the inclusion under the plant protection regulation if this regulation would not be explicitly amended. It might be advantageous to create a group of products clearly defined by their indirect mode of action - whether under plant protection or fertilizer legislation or as a third group would have to be discussed.

As an example, it was figured out that the recent German Plant Protection Act already works with a subgroup which they call "plant improvers" (Pflanzenstärkungsmittel). Such substances or microorganisms are registered on the basis of submitted dossiers and an assessment by related authorities. In Germany, the differentiation between Plant Protection Product and plant improver ("Pflanzenstärkungsmittel") is the mode of action. Direct action against a pathogen characterizes the PPP, indirect action via plant the plant improver. This criterion should be decisive in the ongoing discussion on Biostimulants as well.

A group "bio-stimulants" as proposed could be regulated under the umbrella of Regulation EC 1107/2009 easily by defining them as a group with specific data requirements.

A classification based on the intended uses is accordingly to the existing regulations but is not estimated as useful in general.

### **Data requirements for registration**

The delegates deemed registration and approval of MO products necessary. Nevertheless, they recognized the recent data requirements for plant protection products as too extensive for "small" products, often traditionally used in plant production. A direct application of these data requirements to all MO products would, they feared, eliminate most products from the market. As a compromise they proposed to survey how the Member States are recently treating such products.

In a dossier it should be made clear that the product is harmless to health and environment and reveal that the product is effective. A label should clearly show the species or strain contained in the product and which effects could be achieved. A detailed description of use should be provided.

### **Organizational demands**

During the symposium it became clear that the authorities responsible for both, plant protection products and fertilizer registration, should decide at the beginning of an application how the product should be classified, as plant protection product, as biostimulant or fertilizer. By this procedure the official classification dependent on the principal mode of action would clearly define the data requirements for registration.

For MOs to be imported into the EU the applicants should get the opportunity to inform themselves about the regulations for the import (phytosanitary aspects, nature conservation and others) in a joined bureau.

## Follow-up events

1. A joined database of MO products (PPP and biostimulants) should be set up and supported. Very recently the EU-project "Biofector"<sup>6</sup> together with the German JKI<sup>7</sup> is starting such an approach. The delegates can follow the process on the website [www.biofector.info](http://www.biofector.info) .
2. As an outcome of the symposium, an interest group of "small" companies placing biostimulants on the market, decided to form an association to express their wills more precisely. The delegates can follow the process on the website [www.biostimulants.info](http://www.biostimulants.info) . The next meeting of the interest group takes place during the DLG Field Day (<http://www.dlg-feldtage.de/> ) on the 18th of June 2014 at the Anhalt University in Bernburg (<http://www.hs-anhalt.com/university/sites/bernborg.html> ) starting at 17:00.
3. A follow-up scientific meeting is planned for March 2015 (The "principal mode of action" of micro-organisms as agents between fertilization and plant protection, [www.ppphe.phytomedizin.org](http://www.ppphe.phytomedizin.org) ) .
4. All information on the recent event can soon be found in the Archives of PPPHE (<http://dpg.phytomedizin.org/de/die-dpg/regelmaessige-tagungen-mit-dpg-beteiligung/plant-protection-and-plant-health-in-europe/presentations-ppphe-2014/>)

On behalf of the Symposium Committee I thank all delegates for their mutual discussions and the fruitful atmosphere during the symposium.

Braunschweig, 27.05.2014

Falko Feldmann – Convenor - German Scientific Society for Plant Protection and Plant Health r. S.

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<sup>6</sup> <http://www.biofector.info/>

<sup>7</sup> <http://www.jki.bund.de/>