SLOVENSKI STANDARD
SIST-TS CEN/TS 17724:2023

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Rastlinski biostimulanti - Terminologija

Plant Biostimulants - Terminology

Pflanzen-Biostimulanzien - Terminologie

Biostimulants des végétaux - Terminologie

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ICS 65.080

English Version

Plant biostimulants - Terminology

Biostimulants des végétaux - Terminologie

Biostimulanzien für die pflanzliche Anwendung - Terminologie

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (CEN/TS 17724:2022) has been prepared by Technical Committee CEN/TC 455 “Plant Biostimulants”, the secretariat of which is held by AFNOR.

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Introduction

This document was prepared by the experts of CEN/TC 455 “Plant Biostimulants”. The European Committee for Standardization (CEN) was requested by the European Commission (EC) to draft European standards or European standardization deliverables to support the implementation of Regulation (EU) 2019/1009 of the European Parliament and of the Council of 5 June 2019 laying down rules on the making available on the market of EU fertilising products (“FPR” or “Fertilising Products Regulation”). This standardization request, presented as M/564, also contributes to the Communication on “Innovating for Sustainable Growth: A Bio economy for Europe”. Working Group 5 “Labelling and denominations” was created to develop a work program as part of this standardization request.

Technical Committee CEN/TC 455 “Plant Biostimulants” was established to carry out the work program that will prepare a series of standards. The interest in biostimulants has increased significantly in Europe as a valuable tool to use in agriculture. Standardization was identified as having an important role in order to promote the use of biostimulants. The work of CEN/TC 455 seeks to improve the reliability of the supply chain, thereby improving the confidence of farmers, industry, and consumers in biostimulants, and will promote and support commercialization of the European biostimulant industry.

1 Scope

This document specifies the terms and definitions referred to all the plant biostimulant field and it is constituted by 6 subclauses:

3.1 Claims

3.2 Terms relating to components

3.3 Terms relating to application method

3.4 Terms relating to sample preparation

3.5 Terms relating to physical form

3.6 Others terms relating to plant biostimulants

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Claims

3.1.1 General principles

3.1.1.1
applicant R&D activities
data derived from R&D activities performed by the applicant

Note 1 to entry: R&D can be related to the plant biostimulant product development, testing and validation, irrespective of the environment in which the type of data has been generated (e.g. under controlled conditions, protected crop or field conditions).

Note 2 to entry: If the applicant has performed the R&D activities by its own technical resources or if the applicant has subcontracted the R&D activities, as long as the owner of the outcome data from the R&D activities is and can be proven to be the applicant.

3.1.1.2
bioavailability
degree to which substances can be absorbed/adsorbed by a plant or microbe, which is made available at a site of physiological activity and so is able to have a biological effect

3.1.1.3
claim
effect(s) of the product that could be asserted on the product label of a plant biostimulant and after the conformity assessment procedure

3.1.1.4
crop
cultivated plant including all components of the plant (above ground parts and below ground parts), mushrooms, microalgae and macroalgae

3.1.1.5
general principle
define the crops and quality criteria applicable to all plant biostimulants for carrying out the tests necessary to justify the claim

3.1.1.6
plant
live plant and live parts of plants, including fresh fruit, vegetables and seeds

Note 1 to entry: It also includes microalgae, macroalgae and mushrooms.

3.1.1.7
plant biostimulant product
product stimulating plant nutrition processes independently of the product's nutrient content with the sole aim of improving the nutrient use efficiency, the tolerance to abiotic stress, the quality traits of the plant or the plant rhizosphere or the availability of confined nutrient in soil or rhizosphere

3.1.1.8
protected crop
crop cultivation in greenhouses or plastic tunnels with or without specific control of climate conditions according to the farming practice

EXAMPLE Cucumbers/tomatoes cultivation.

3.1.1.9
plant nutrient
chemical element used by the plant for growth and development, usually classified as primary macronutrients, secondary macronutrients and micronutrients in the quantities required by the plant

Note 1 to entry: Carbon, hydrogen, and oxygen are also essential elements for plant growth.

Note 2 to entry: Primary macronutrients – nitrogen, phosphorus, potassium;

secondary macronutrients – calcium, magnesium, sodium, sulphur;

micronutrients – boron, cobalt, copper, iron, manganese, molybdenum, zinc.

3.1.1.10
trial series
combination of more than one trial result, all trials performed under the same trial protocol but in different places and/or at different times

EXAMPLE Rate, crop, number of applications.

3.1.2
Nutrient Use Efficiency
NUE
measure of a plant's ability to acquire and utilize nutrients from the environment for a desired outcome based on (a) nutrient availability (b) uptake efficiency and/or (c) utilization efficiency

Note 1 to entry: Nutrient use efficiency is a complex trait: it depends on the ability to take up the nutrients from the soil, medium, fertilizing products, but also on transport, storage, mobilization, usage by the plant.

3.1.2.1
chelated plant nutrient
complexed plant nutrient
composition based on an inorganic form of the plant nutrient and a chelating or complexing agent, resulting in a product that enhances the nutrient availability to plants

EXAMPLE A composition of chelated or complexed plant nutrient is a salt or oxide.

3.1.2.2
labelling
improve nutrient(s) use efficiency (the nutrient in question must be precisely specified) according to the type of the product biostimulant's activities and the type of plant nutrients

3.1.2.3
nutrient assimilation
uptake of nutrients into cells and tissues and consequent building up into more complex substances

EXAMPLE Converting available nitrogen into biomass.

3.1.2.4
nutrient availability
measure of the capacity of a nutrient to be acquired by the plant, depending on its presence in the soil solution or on soil colloids

3.1.2.5
nutrient uptake
acquisition of nutrients by the plant

3.1.2.6
plant development
complex process by which the size, composition and organization of a plant changes during its life, encompassing seed germination, vegetative growth, formation of flowers, bloom, fruit set and maturation (embryo development)

3.1.2.7
plant metabolism
various biochemical reactions occurring in a living plant cell in order to maintain life and growth

3.1.2.8
plant nutrition
supply and absorption of chemical compounds needed for plant growth and metabolism

3.1.2.9
plant nutrition process
mechanism by which nutrients are utilized or converted to cellular constituents and used for energetic or metabolic purposes

3.1.2.10
quality
desired attributes of cultivated organisms in terms of human or animal nutrition, marketing, aesthetics, composition, agronomical trait, or technical

3.1.2.11
substance
chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additives necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which can be separated without affecting the stability of the substance or changing its composition

3.1.2.12
uptake efficiency
measure of the plant capacity to acquire nutrients from the environment

3.1.2.13
utilization efficiency
measure of the plant capacity to transform and valorize absorbed nutrients into more complex substances

EXAMPLE Organic compounds, plant biomass.

3.1.3
tolerance to abiotic stress
ability to endure abiotic stress

3.1.3.1
abiotic stress
negative impact of non-living factors on the plant in a specific crop environment

Note 1 to entry: Crop tolerance to abiotic stress is addressed to one or more (multiple or combined) of the following stress categories:

1) chemical stress;

2) light stress;

3) mechanical stress;

4) osmotic stress;

5) oxidative stress;

6) thermal stress;

7) water stress.

3.1.3.1.1
chemical stress
negative impact of chemicals (supra-optimal or sub-optimal chemical compounds or presence) on the plant in a specific crop environment

EXAMPLE Salt stress, high solutes concentrations, mineral toxicity induced by heavy metals or excessive application of mineral nutrients, adverse pH conditions, ozone stress, phytotoxic effects of xenobiotics.

3.1.3.1.2
light stress
negative impact of light intensity and/or spectrum on the plant in a specific crop environment

EXAMPLE High irradiance or low irradiance, UV radiation.

3.1.3.1.3
mechanical stress
negative impact of a mechanical force on the plant or the root zone in a specific crop environment

EXAMPLE Wind, hail, agricultural operations.

3.1.3.1.4
osmotic stress
physiologic dysfunction caused by a sudden change in the solute concentration around a cell, which causes a rapid change in the movement of water across its cell membrane

3.1.3.1.5
oxidative stress
disturbance in the normal redox state of cells that can cause toxic effects through the production of peroxidase and free radicals that damage all components of the cells, including proteins, lipids and DNA

3.1.3.1.6
thermal stress
negative impact of temperature (supra-optimal and sub-optimal temperature) on the plant in a specific crop environment

EXAMPLE Heat stress or cold stress such as chilling and freezing stress environment.

3.1.3.1.7
water stress
negative impact of water or high solutes concentration (supra-optimal and sub-optimal temperature with the water level) or excessive transpiration on the plant in a specific crop environment

EXAMPLE Drought, high vapour pressure deficit, flooding.

3.1.3.2
priming effect
biochemical signalling induced by a first stress exposure that leads to enhanced defence system to a later stress

Note 1 to entry: Priming effect results in a faster and stronger induction of basal defence mechanisms to abiotic stresses. Biostimulants can act as a priming stimulus. Some priming effects have been shown to pass down plant generations allowing a local population to improve fitness to the immediate environment.

3.1.3.3
xenobiotic
chemical substance found within an organism that is not naturally produced or expected to be present within the organism

EXAMPLE Heavy metals, pesticides, ozone.

3.1.4
quality trait
desired attribute(s) of a crop regarding agronomical and marketable traits