



BIOTIC EUROPEAN PRODUCER
PREBIOTIC • PROBIOTIC • POSTBIOTIC

CONFIDENTIAL BUSINESS COMMUNICATION
proprietary to Artechno s.a.
Rue Herman Méganck 21, Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be



CONFIDENTIAL BUSINESS COMMUNICATION
proprietary to Artechno s.a.
Rue Herman Méganck 21, Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be

DISCLAIMER – CONFIDENTIAL BUSINESS COMMUNICATION

This presentation is intended solely for professional business-to-business use and is confidential. It is not intended for final consumers or for use in any consumer-directed communications. The information and statements contained herein serve illustrative purposes only and do not constitute an offer, inducement or approved claim.

Regulations governing product claims, ingredients and marketing communications, may vary significantly between countries. It is the responsibility of the recipient to ensure that the use of this information in relation to their branded products complies with local laws and regulatory requirements.

While all reasonable efforts have been made to ensure the accuracy and reliability of the information provided, Artechno does not warrant the completeness or correctness of the information contained in this presentation, or in the documents referenced or cited herein. No liability shall be incurred by Artechno for any omissions, inaccuracies or third-party contributions. Artechno reserves the right to modify this information at any time.

This presentation is proprietary to Artechno. Accordingly, the use, reproduction or distribution beyond its intended professional context, as well as adaptation of any part of this presentation—particularly in different contexts, with modifications, or with added visuals, are not authorized without Artechno's prior written consent. Artechno shall therefore have no liability whatsoever in these circumstances, including any loss or damage resulting from the use of this document or the information contained herein.



Prof. Philippe Thonart

Founded by Professor Philippe Thonart in 1999, with over 40 years of experience in academia and industry, he leads several microbiology scientific teams.

Prof. Thonart specializes in the production of microorganisms, focusing on drying procedures such as lyophilization (freeze-drying) and spray drying.

He has contributed to over 400 peer-reviewed publications in journals such as Nature Communications, PLoS One, and Applied Microbiology and Biotechnology.

Additionally, he is credited as an inventor on a dozen patents. From 1988 to 2015, he managed the Centre Wallon de Biologie Industrielle (CWBI) in Belgium.

COMPANY PROFILE

Belgian company, member of TH Group.

Over 20 years of experience industrializing microorganisms

Producer of a broad range of freeze-dried bacteria & yeast probiotic powder.

Sectors:

- Human health: nutraceuticals, nutricosmetics.
- Agriculture
- Animals feed
- Environment
- Hygiene

Services:

- Biotics private label services
- Toll manufacturing of private strains
- Plant extracts fermentation
- Drying by freeze-dried or spray dried process
- Biotech R&D projects

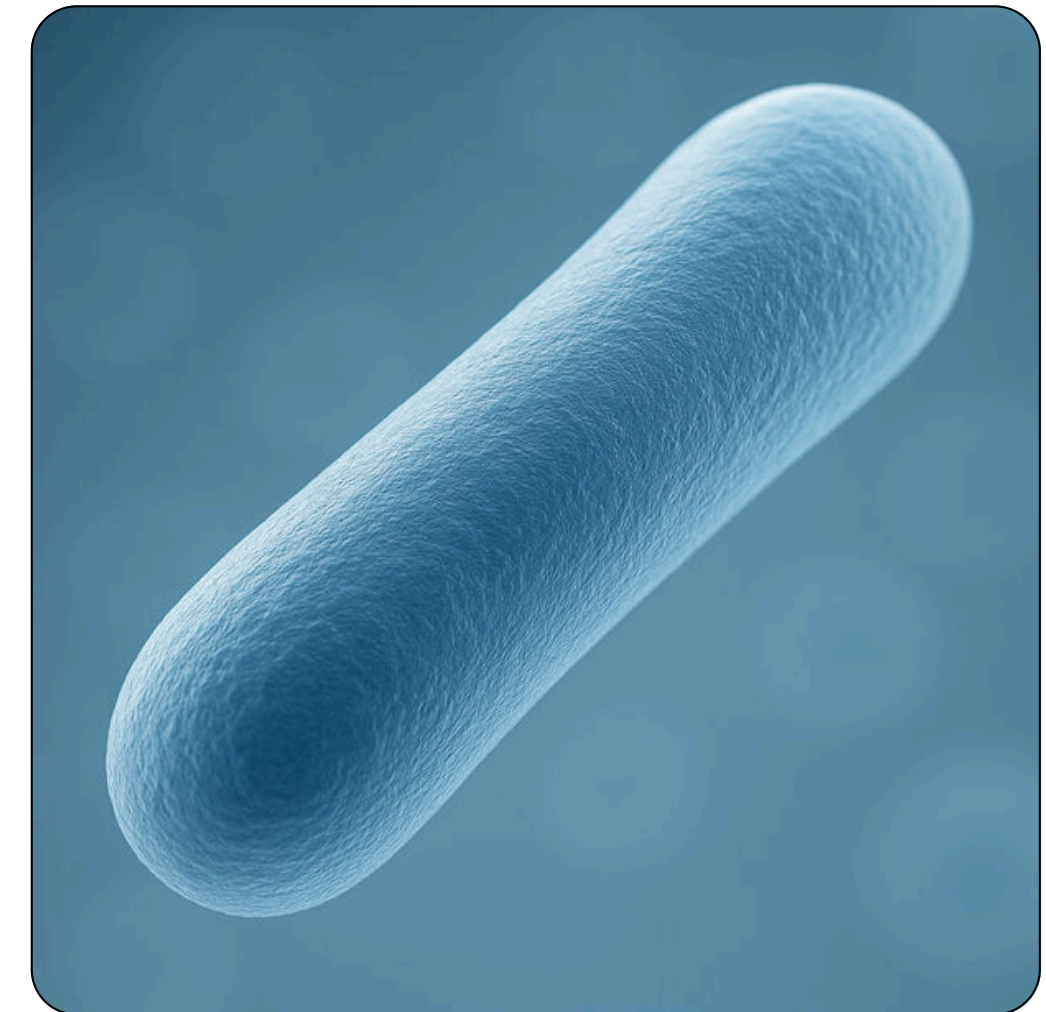
VAT N°: 0465.147.959

FASFC N° (Belgian Federal Agency for the Safety of the Food Chain): **2.206.323.002**

Authorized Exporter N°: **BE 2136**, HS code: 2102 - 2309 - 3002 - 3101



BIOTIC EUROPEAN PRODUCER
PREBIOTIC • PROBIOTIC • POSTBIOTIC



CONFIDENTIAL BUSINESS COMMUNICATION
proprietary to Artechno s.a.

Rue Herman Méganck 21, Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be

INDUSTRIAL SITE

Located in the heart of Europe,
Belgium

Artechno s.a.

Rue Herman Méganck 21, Parc
scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be



BIOTIC EUROPEAN PRODUCER
PREBIOTIC • PROBIOTIC • POSTBIOTIC



INDUSTRIAL EQUIPMENTS

CONFIDENTIAL BUSINESS COMMUNICATION
proprietary to Artechno s.a.
Rue Herman Méganck 21, Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be

Fermentation process



BIOREACTORS

Freeze-drying process



LYOPHILIZATION EQUIPMENTS

Drying process



SPRY DRYING EQUIPMENTS

PREBIOTIC - PROBIOTIC - POSTBIOTIC ANALOGY

Postbiotic

Production of metabolites, such as: Lactic acid, SCFA, Bacteriocines, enzymes, vitamins



Probiotic

Spore forming & LAB lactic acid bacteria strains, able to resist acidity and colonize gastro intestinal tract

Prebiotic

Source of food and energy, for example, dietary fibers.



GUM ARABIC AS PREBIOTIC

Ingredient specification	CAS N°	<u>RDA'S</u> <u>Recommended</u> <u>daily allowance</u>	<u>UL: The tolerable</u> <u>upper intake level</u>	EFSA Article 13 <u>health</u> claims	Example of wording claims Article 13 health claims	Claim ID
Loss & Drying: Max. 15% Density: 0,6 - 0,8 g/mL HSN Code : 130120 Availaible packages: 25 Kg, LDPE / Paper bags Standard quality* 5,10,25 kg LDPE/ Aluminium bags Premium quality* Storage & Shelf life: Closed bags room T°: 2 years	9000-01-5	6 g /day	<u>30g / day.</u>	Prebiotic action: increase in beneficial bacteria in the colon	-Acacia gum is a bifidogenic fibre; -Acacia gum has a prebiotic effect; -Acacia gum stimulates the growth of beneficial bacteria in the colon; -Acacia gum beneficially modulates the intestina	758
				Improved intestinal conditions (pH, SCFA production) and intestinal functions	-Acacia gum promotes good intestinal health; -Acacia gum improves bowel functions & gut comfort;	759
				Contains Prebiotic/ has prebiotic effect	-Contains Prebiotic -Promotes growth of healthy organisms	760
				Beneficial effect on intestinal microflora, gut integrity, digestion	-Helps maintain a healthy balance of beneficial bacteria -Promotes the positive balance of the intestinal flora -Maintains a healthy gut -Maintains a healthy intestinal environment -Stimulates the growth of bifidobacteria	761

*Standard quality: Loss & Drying Max. 15%

*Premium quality: Loss & Drying Max. < 6% - upgrade quality to Blend with sensitive ingredients



GUM ARABIC VS INULIN AND FOS AS PREBIOTICS

Acacia gum was shown to produce a greater increase in Bifidobacteria and Lactobacilli than an equal dose of inulin, and resulted in fewer gastrointestinal side effects, such as gas and bloating.

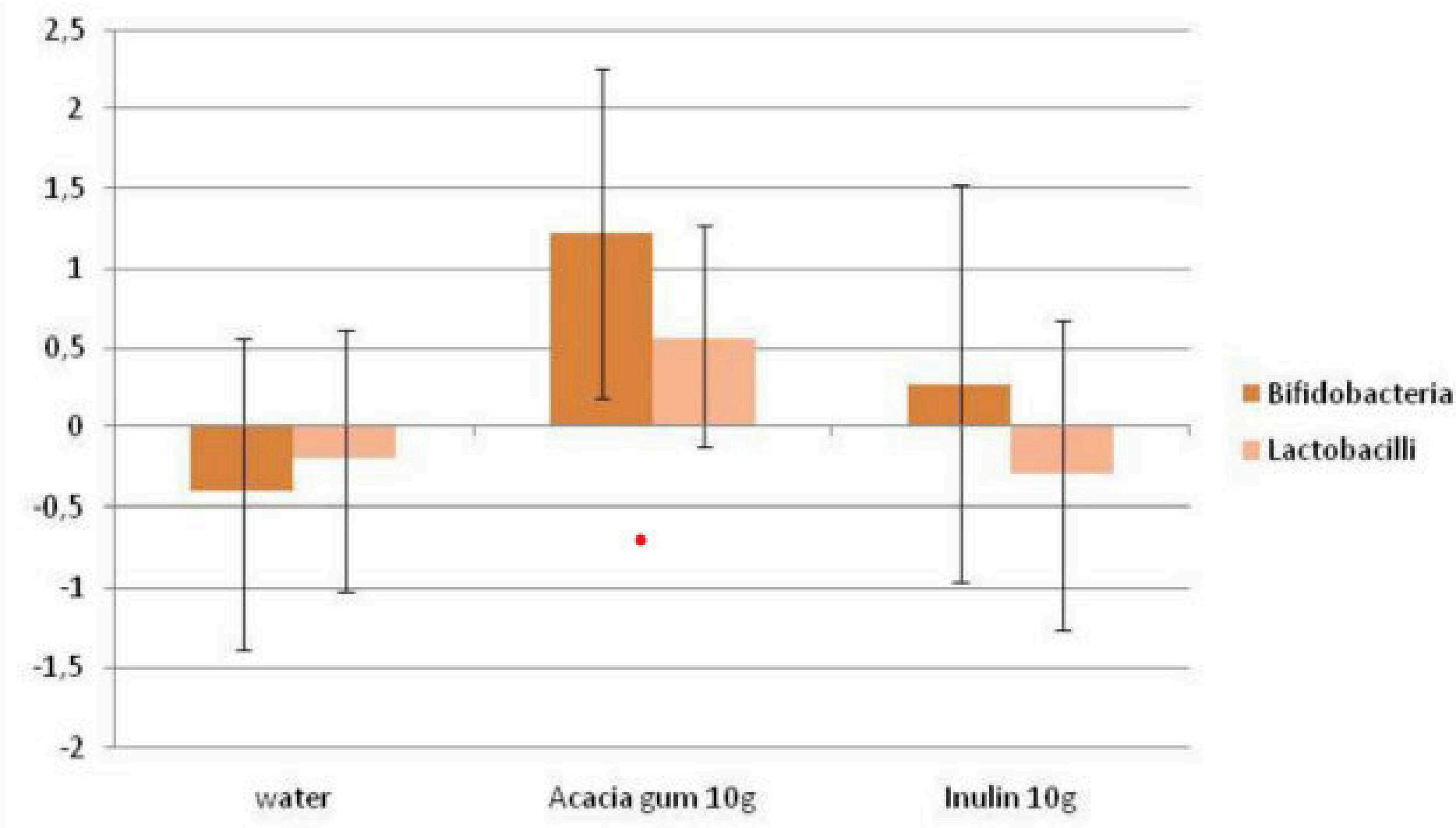


Fig. 2. The change in 10-logarithmic numbers of bacteria during 4 weeks of consumption of 10g acacia gum, 10g inulin or water [10]

PROBIOTICS STRAINS LIST

Bacillus sp	Lactobacillus sp	Lactobacillus sp	Bifidobacterium sp	Saccharomyces yeast
Bacillus coagulans	Lactobacillus acidophilus	Lactobacillus plantarum	Bifidobacterium animalis sp. lactis	Saccharomyces boulardii
Bacillus subtilis natto	Lactobacillus delbruecki	Lactobacillus reuteri	Bifidobacterium Bifidum	
Bacillus clausii	Levilactobacillus brevis	Lactobacillus rhamnosus	Bifidobacterium Breve	
Bacillus amyloliquefaciens	Lacticaseibacillus casei	Lactobacillus salivarius	Bifidobacterium Longum	
Bacillus licheniformis	Lactobacillus crispatus	Lactobacillus gasseri	Bifidobacterium L. Infantis	
Bacillus pumilus	Limosilactobacillus fermentum			
Sporulated gram+ bacteria Resistance: temperature, Humidity and oxygen Highly recommended for subtropical - tropical weather and temperature store conditions;	Lactobacillus helveticus			
	Lacticaseibacillus rh sp. paracasei			

Multi strains formulas

Sole strain

Powder form

POSTBIOTICS TYNDALLIZED / LYSATES

“A preparation of inanimate microorganisms and/or their components that confers a health benefit on the host.”

Regulatory Definition (ISAPP 2021)

CONFIDENTIAL BUSINESS COMMUNICATION

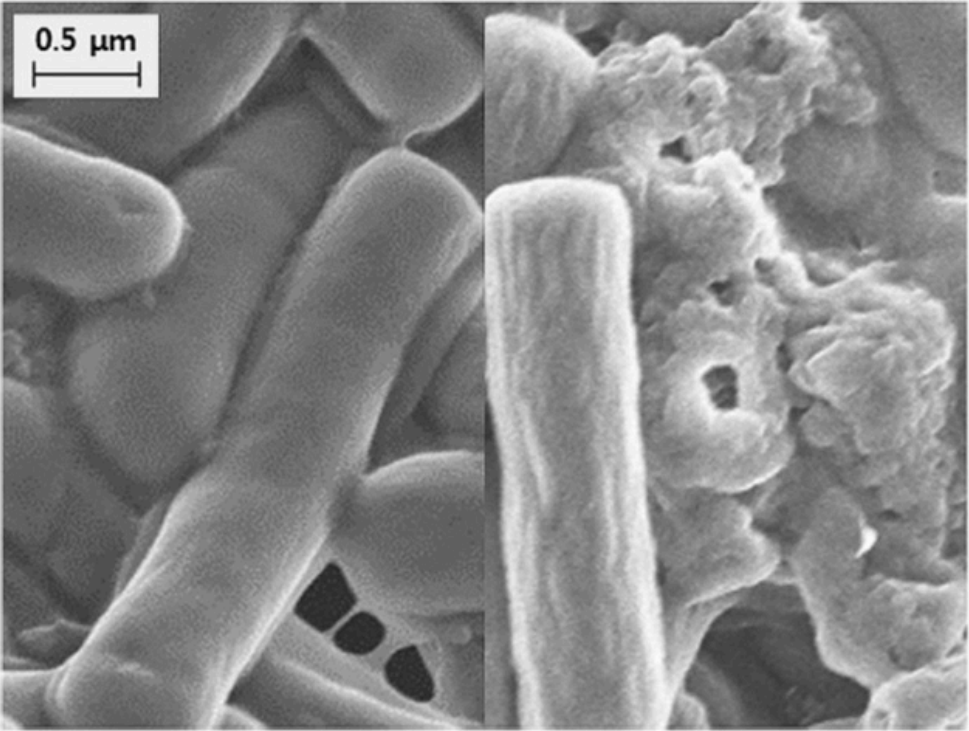
proprietary to Artechno s.a.

Rue Herman Méganck 21,Parc scientifique Crealys

B-5032 Isnes-Gembloux, Belgium

www.artechno.be

Bacillus sp	Lactobacillus sp	Lactobacillus sp	Bifidobacterium sp
Bacillus coagulans	<u>Lactobacillus acidophilus</u>	Lactobacillus plantarum	Bifidobacterium animalis sp. lactis
Bacillus subtilis natto	Lactobacillus delbruecki	Lactobacillus reuteri	Bifidobacterium Bifidum
Bacillus clausii	Levilactobacillus brevis	Lactobacillus rhamnosus	Bifidobacterium Breve
Saccharomyces yeast	Lacticaseibacillus casei	Lactobacillus salivarius	Bifidobacterium Longum
Saccharomyces boulardii	Lactobacillus crispatus	Lactobacillus gasseri	Bifidobacterium L. Infantis
	Limosilactobacillus fermentum		
	Lactobacillus helveticus		
	Lacticaseibacillus rh sp. paracasei		
		Lysate postbiotic	Tyndalized postbiotic



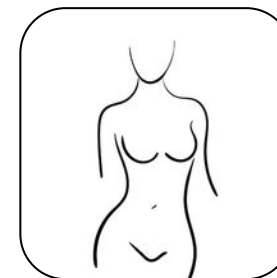
Comparison *L. rhamnosus* strain (left picture) vs *L. rhamnosus* tyndall (right picture)



BIOTIC* HEALTHCARE SOLUTION



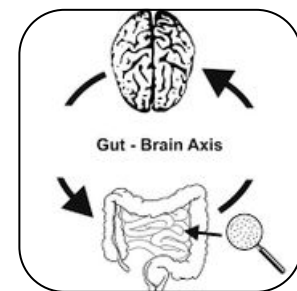
Children



Women health



Longevity



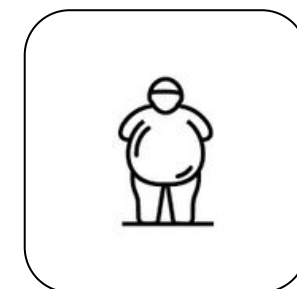
Axis gut - brain



Intestinal health



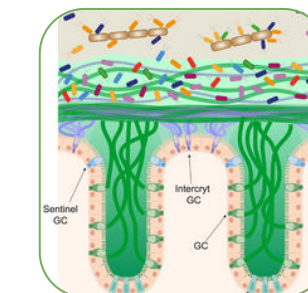
Immuno modulation



Obesity



Nutricosmetics



Intestinal Barrier

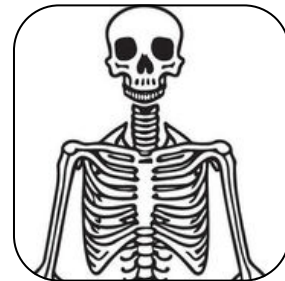


Oral care



Allergies

BIOTIC* HEALTH APPLICATION



Bones



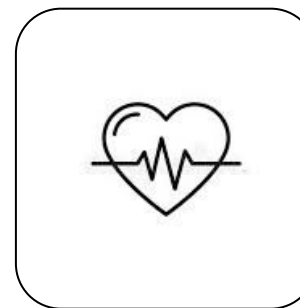
Sports



Diarrhea



Cholesterol



Cardiovascular health

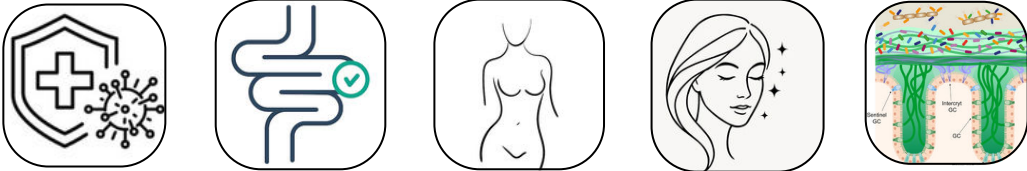


Diabetis



Biotic*: Prebiotic - Probiotic - Postbiotics / symbiotics

BACILLUS COAGULANS

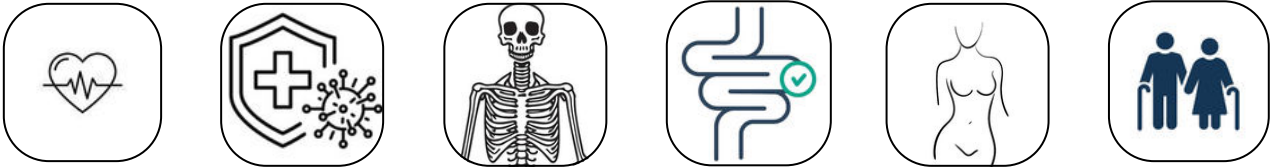


New nomeclature name	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Heyndrickxia coagulans	ATB-BCS-042	ATCC 7050 / LMG 6326	Evaporated Milk	<u>Mode of action and safety of lactosporin, a novel antimicrobial protein produced by Bacillus coagulans ATCC 7050</u>	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS EFSA* statement: Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Effects of B. coagulans on vaginal microbiota</u>	
				<u>Weizmannia coagulans: an ideal probiotic for gut health</u>	
				<u>Modulation of the quality and composition of the primitive microbiota</u>	
				<u>Bacillus coagulans metabolites production and development of functional food</u>	
				<u>Progress of research and application of Heyndrickxia coagulans (bacillus coagulans as probiotic bacteria</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: Belgian Coordinated Collections of Microorganisms
QPS -EFSA*: Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)
EFSA* : European Food Safety Authority

CONFIDENTIAL BUSINESS COMMUNICATION
proprietary to Artechno s.a.
Rue Herman Méganck 21,Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be

BACILLUS SUBTILIS NATTO



New nomeclature name	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Bacillus subtilis	ATB-BCS-049	LMG S-29373 Private deposit	“Natto”, a traditional Japanese food obtained by the fermentation of boiled soybeans.	<u>What is Bacillus subtilis natto?</u>	BCCM statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS EFSA statement: Qualification 1. The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Efficacy of Natto and Nattokinase</u>	
				<u>Elaborating B-complex vitamins abundantly</u>	
				<u>Bacillus subtilis natto is a type of bacteria that produces salt-free fermented soy food such as Japanese traditional sticky natto, Kinema from Nepal and Thuanao from Thailand.</u>	
				<u>Vitamin K2 production, Menaquinone-7 (MK-7), the most bioactive form of</u>	
				<u>Producing strong protein degradation enzymes and starch degradation enzymes</u>	
				<u>Impact of Bacillus in fermented soybean foods on human health</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: Belgian Coordinated Collections of Microorganisms
QPS -EFSA*: “Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)
EFSA* : European Food Safety Authority

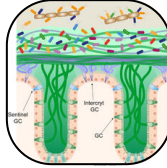
SACCHAROMYCES BOULARDII



New nomeclature	Internal code	International passport number	Origin	Citations-Bibliography*	Bio hazard Risk assesment
Saccharomyces cerevisiae Boulardii	ATY-SBI101	MUCL 53837	Vegetal	<u>Treatment gastrointestinal diseases.</u>	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS EFSA* statement: Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Colonization & exclusion of pathogens</u>	
				<u>Improvement Epithelial barrier</u>	
				<u>Competitive exclusion</u>	
				<u>Saccharomyces boulardii modulates dendritic cell properties and intestinal microbiota disruption after antibiotic treatment</u>	
				<u>Enhancer anti inflammatory effectors</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: Belgian Coordinated Collections of Microorganisms
QPS -EFSA*: Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)
EFSA* : European Food Safety Authority

LACTOBACILLUS REUTERI



New nomeclature	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Limosilactobacillus reuteri	ATB-LRI-924	LMG 9213 ATCC 23272 ATCC 53609	Human intestin	<u>Evaluation of In Vitro Production Capabilities of Indole Derivatives by Lactic Acid Bacteria</u>	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS* EFSA* statement: Qualification 1. The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>The role of potential probiotic strains Lactobacillus reuteri in various intestinal diseases: New roles for an old player</u>	
				<u>Role of Lactobacillus reuteri in Human Health and Diseases</u>	
				<u>Limosilactobacillus reuteri inhibits the acid tolerance response in oral bacteria</u>	
				<u>Antibacterial activity of lactobacilli probiotics on clinical strains of Helicobacter pylori</u>	
				<u>Probiotic Lactobacillus sp. inhibit growth, biofilm formation and gene expression of caries-inducing Streptococcus mutans</u>	
				<u>Mechanism of Lactobacillus reuteri Probiotic in Increasing Intestinal Mucosal Immune System</u>	
				<u>Human-derived probiotic Lactobacillus reuteri strains differentially reduce intestinal inflammation</u>	
				<u>The Probiotic Lactobacillus reuteri Preferentially Synthesizes Kynurenic Acid from Kynurenine</u>	
				<u>Lactobacillus reuteri, It may provide some benefits for cholesterol levels, reducing H. pylori levels</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: Belgian Coordinated Collections of Microorganisms
QPS -EFSA*: Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)
EFSA* : European Food Safety Authority

LACTOBACILLUS FERMENTUM

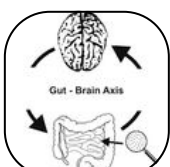
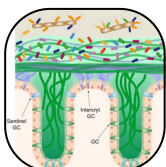


New nomeclature	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Limosilactobacillus fermentum	ATB-LFM-902	LMG 6902	Fermented beets (Beta vulgaris)	<u>An In Vitro Study of the Probiotic Potential of a Bile-Salt-Hydrolyzing Lactobacillus fermentum Strain, and Determination of Its Cholesterol-Lowering Properties</u>	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS* EFSA* statement: Qualification 1. The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Limosilactobacillus fermentum, Current Evidence on the Antioxidant Properties and Opportunities to be Exploited as a Probiotic Microorganism</u>	
				<u>Limosilactobacillus fermentum Strains as Novel Probiotic Candidates to Promote Host Health Benefits and Development of Biotherapeutics</u>	
				<u>Probiotic attributes of Lactobacillus fermentum isolated from human feces and dairy products</u>	
				<u>Isolation, Characterization and Biosafety Evaluation of Lactobacillus Fermentum OK with Potential Oral Probiotic Properties</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: Belgian Coordinated Collections of Microorganisms
QPS -EFSA*: Qualified presumption of safety” (status provides a harmonized safety assesity approach used by EFSA)
EFSA* : European Food Safety Authority

CONFIDENTIAL BUSINESS COMMUNICATION
proprietary to Artechno s.a.
Rue Herman Méganck 21,Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be

LACTOBACILLUS RHAMNOSUS



New nomeclature	Internal code	Inter. passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Lacticaseibacillus rhamnosus	ATB-LRS-915	LMG 25626	Human intestin	<u>Probiotic research priorities for the healthy adult population: A review on the health benefits of Lactobacillus rhamnosus GG and Bifidobacterium Sp</u>	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS* EFSA* statement: Qualification 1. The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Lactobacillus rhamnosus Gorbach-Goldin (GG): A Top Well-Researched Probiotic Strain</u>	
				<u>Lactobacillus rhamnosus postbiotic-induced immunomodulation as safer alternative to the use of live bacteria</u>	
				<u>Lysates of a Probiotic, Lactobacillus rhamnosus, Can Improve Skin Barrier Function in a Reconstructed Human Epidermis Model</u>	
				<u>Effects of Lactobacillus rhamnosus GG supplementation for the prevention of healthcare-associated diarrhoea in children</u>	
				<u>Strain-Specificity and Disease-Specificity of Probiotic Efficacy: A Systematic Review and Meta-Analysis</u>	
				<u>Mucosal adhesion and anti-inflammatory effects of Lactobacillus rhamnosus GG in the human colonic mucosa: A proof-of-concept study</u>	
				<u>Inhibition of Candida albicans morphogenesis by chitinase from Lactobacillus rhamnosus GG</u>	
				<u>Persistence of Colonization of Human Colonic Mucosa by a Probiotic Strain, Lactobacillus rhamnosusGG, after Oral Consumption</u>	
				<u>Lactobacillus rhamnosus: An emerging probiotic with therapeutic potential for depression</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: Belgian Coordinated Collections of Microorganisms
QPS -EFSA*: Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)
EFSA* : European Food Safety Authority

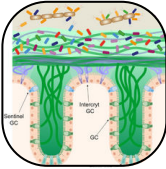
LACTOBACILLUS ACIDOPHILUS



New nomeclature	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Lactobacillus acidophilus	ATB-LAS-919	LMG 8151	Acidophilus milk	<u>The Functional Roles of Lactobacillus acidophilus in Different Physiological and Pathological Processes</u>	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS* EFSA* statement: Qualification 1. The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Lactobacillus acidophilus - an overview</u>	
				<u>Health-Promoting Effects of Lactobacillus acidophilus and Its Technological Applications in Fermented Food Products and Beverages</u>	
				<u>Lactobacillus acidophilus- International probiotic asociation</u>	
				<u>The immune regulatory role of Lactobacillus acidophilus: An updated meta-analysis of randomized controlled trials</u>	
				<u>Immunomodulatory Potential of Lactobacillus acidophilus: Implications in Bone Health</u>	
				<u>Immunomodulatory mechanisms of lactobacilli</u>	
				<u>Protective effects of tyndallized Lactobacillus acidophilus IDCC 3302 against UVB-induced photodamage to epidermal keratinocytes cells</u>	
				<u>The Effect of Probiotics on the Production of Short-Chain Fatty Acids by Human Intestinal Microbiome</u>	
				<u>Lactobacillus acidophilus opens the door to butyrate</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: *Belgian Coordinated Collections of Microorganisms*
QPS -EFSA*: *Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)*
EFSA* : *European Food Safety Authority*

LACTOBACILLUS CASEI



New nomeclature	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Lacticaseibacillus casei	ATB-LCI-909	LMG 6904	Cheese	<u>Lactobacillus casei - an overview</u>	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS* EFSA* statement: Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>The Influence of Probiotic Lactobacillus casei in Combination with Prebiotic Inulin on the Antioxidant Capacity of Human Plasma</u>	
				<u>Contribution of Lactobacilli on Intestinal Mucosal Barrier and Diseases: Perspectives and Challenges of Lactobacillus casei</u>	
				<u>Lactobacillus casei reduces susceptibility to type 2 diabetes via microbiota-mediated body chloride ion influx</u>	
				<u>Evaluation of Immunomodulatory Activities of the Heat-Killed Probiotic Strain Lactobacillus casei IMAU60214 on Macrophages In Vitro</u>	
				<u>The Probiotic Bacterium Lactobacillus casei Induces Activation of the Gut Mucosal Immune System through Innate Immunity</u>	
				<u>The Effects of Lactobacillus casei on Glycemic Response, Serum Sirtuin and Fetuin-A Levels in Patients with Type 2 Diabetes Mellitus: A Randomized Controlled Trial</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: *Belgian Coordinated Collections of Microorganisms*
QPS -EFSA*: *Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)*
EFSA* : *European Food Safety Authority*

CONFIDENTIAL BUSINESS COMMUNICATION
proprietary to Artechno s.a.
Rue Herman Méganck 21,Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be

LACTOBACILLUS GASSERI



New nomeclature	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Lactobacillus gassseri	ATB-LGI-923	LMG 26661		<u>Exploring the health-promoting potential: Dietary intervention with live or inactivated Lactobacillus gasseri HM1 probiotics in obese mice</u>	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS* EFSA* statement: Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Characterization of a Lactobacillus gasseri strain as a probiotic for female vaginitis</u>	
				<u>Genomic and phenotypic evidence for probiotic influences of Lactobacillus gasseri on human health</u>	
				<u>Comparative Analysis of Lactobacillus gasseri and Lactobacillus crispatus Isolated From Human Urogenital and Gastrointestinal Tracts</u>	
				<u>Protective Effects of Lactobacillus gasseri against High-Cholesterol Diet-Induced Fatty Liver and Regulation of Host Gene Expression Profiles</u>	
				<u>Comparative meta-analysis of the effect of Lactobacillus species on weight gain in humans and animals</u>	
				<u>Is Probiotic Supplementation Useful for the Management of Body Weight and Other Anthropometric Measures in Adults Affected by Overweight and Obesity with Metabolic Related Diseases? A Systematic Review and Meta-Analysis</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: *Belgian Coordinated Collections of Microorganisms*
QPS -EFSA*: *Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)*
EFSA* : *European Food Safety Authority*

CONFIDENTIAL BUSINESS COMMUNICATION
proprietary to Artechno s.a.
Rue Herman Méganck 21,Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be

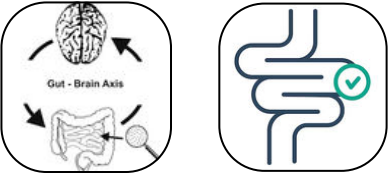
LACTOBACILLUS PLANTARUM



New nomeclature	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Lactiplantibacillus plantarum	ATB-LPM-907	LMG 26655	Human intestine	<u>The Role of Lactobacillus plantarum in Reducing Obesity and Inflammation: A Meta-Analysis</u>	BCCM statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS EFSA statement: Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Meta-Analysis: Randomized Trials of Lactobacillus plantarum on Immune Regulation Over the Last Decades</u>	
				<u>The Benefits and Applications of Lactobacillus plantarum in Food and Health: A Narrative Review</u>	
				<u>Lactiplantibacillus plantarum–Nomad and Ideal Probiotic</u>	
				<u>Mechanisms of Health Improvement by Lactiplantibacillus plantarum Based on Animal and Human Trials: A Review</u>	
				<u>Modulatory effects of Lactiplantibacillus plantarum on chronic metabolic diseases</u>	
				<u>Short-Chain Fatty-Acid-Producing Bacteria: Key Components of the Human Gut Microbiota</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: Belgian Coordinated Collections of Microorganisms
QPS -EFSA*: Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)
EFSA* : European Food Safety Authority

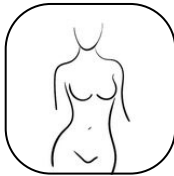
LACTOBACILLUS BREVIS



New nomeclature	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Levilactobacillus brevis	ATB-LBS-908	LMG 27275		Characteristics of Lactobacillus brevis	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS* EFSA* statement: Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				Characterization of Lactobacillus brevis with Potential Probiotic Properties and Biofilm Inhibition against Pseudomonas aeruginosa	
				Characterization of a Lactobacillus brevis strain with potential oral probiotic properties	
				Screening Potential Probiotic Characteristics of Lactobacillus brevis Strains In Vitro and Intervention Effect on Type I Diabetes In Vivo	
				Gaba-producing lactobacilli boost cognitive reactivity to negative mood without improving cognitive performance	
				GABA -Producing Levilactobacillus brevis Strains as Probiotics in Litchi Juice Fermentation	
				Production of Gamma-Aminobutyric Acid from Lactic Acid Bacteria: A Systematic Review	
				Gamma-aminobutyric acid as a potential postbiotic mediator in the gut–brain axis	
				Health Benefits of Heat-Killed (Tyndallized) Probiotics: An Overview.	
				Gut liver brain axis in diseases: the implications for therapeutic interventions	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: Belgian Coordinated Collections of Microorganisms
QPS -EFSA*: Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)
EFSA* : European Food Safety Authority

LACTOBACILLUS CRISPATUS



New nomenclature name	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Lactobacillus crispatus	ATB-LCP-913	LMG 12005	Human vagina	<u>Vaginal microbiome Lactobacillus crispatus is heritable among European American women</u> <u>Impact of Lactobacillus crispatus -containing oral and vaginal probiotics on vaginal health: a randomised double-blind placebo controlled clinical trial</u> <u>Lactobacillus crispatus as biomarker of the healthy vaginal tract</u> <u>Vaginal microbiome of reproductive-age women</u> <u>Vaginal microbiota and the potential of Lactobacillus derivatives in maintaining vaginal health</u> <u>Bacteria in your vagina</u> <u>Lactobacilli dominate the vagina in Belgian women</u> <u>Video: The Vaginal Microbiome: It's Role in Women's Health and Disease, PhD. Dr. Ravel, Professor of Microbiology and Immunology at UMSOM</u>	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS EFSA* statement: Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: Belgian Coordinated Collections of Microorganisms
QPS -EFSA*: Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)
EFSA* : European Food Safety Authority

BIFIDOBACTERIUM BIFIDUM



New nomenclature name	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Bifidobacterium bifidum	ATB-BBM-801	LMG 25628	Human intestin	<u>The Science Underlying the Probiotic Strain Bifidobacterium in Beneficial Effects on Immunological and Gastrointestinal Health</u>	BCCM* Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS EFSA* statement: Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Bifidobacteriaceae diversity in the human microbiome from a large-scale genome-wide analysis</u>	
				<u>Benefaction of probiotics for human health: A review</u>	
				<u>Recent developments in probiotics: An emphasis on Bifidobacterium</u>	
				<u>The Effects of Bifidobacterium Probiotic Supplementation on Blood Glucose: A Systematic Review and Meta-Analysis of Animal Models and Clinical Evidence</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: *Belgian Coordinated Collections of Microorganisms*
QPS -EFSA*: *Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)*
EFSA* : *European Food Safety Authority*

BIFIDOBACTERIUM LONGUM



New nomenclature name	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Bifidobacterium longum	ATB-BLM-802			<u>The gut core microbial species Bifidobacterium longum: Colonization, mechanisms, and health benefits</u>	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS EFSA* statement: Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Probiotic Bifidobacterium longum alters gut luminal metabolism through modification of the gut microbial community</u>	
				<u>Genetic strategies for sex-biased persistence of gut microbes across human life</u>	
				<u>Cross-feeding of bifidobacteria promotes intestinal homeostasis: a lifelong perspective on the host health</u>	
				<u>Detailed mapping of Bifidobacterium strain transmission from mother to infant via a dual culture-based and metagenomic approach</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: *Belgian Coordinated Collections of Microorganisms*
QPS -EFSA*: *Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)*
EFSA* : *European Food Safety Authority*

CONFIDENTIAL BUSINESS COMMUNICATION
proprietary to Artechno s.a.
Rue Herman Méganck 21,Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be

BIFIDOBACTERIUM INFANTIS



New nomeclature name	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Bifidobacterium Infantis	ATB-BIS-805	LMG 25627	Human intestin	<u>Bifidobacterium longum subspecies infantis: champion colonizer of the infant gut</u>	BCCM* Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS EFSA* statement: Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Combining Bifidobacterium longum subsp. infantis and human milk oligosaccharides synergistically increases short chain fatty acid production ex vivo</u>	
				<u>Breast milk-derived human milk oligosaccharides promote Bifidobacterium interactions within a single ecosystem</u>	
				<u>Genetic strategies for sex-biased persistence of gut microbes across human life</u>	
				<u>Cross-feeding of bifidobacteria promotes intestinal homeostasis: a lifelong perspective on the host health</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: Belgian Coordinated Collections of Microorganisms
QPS -EFSA*: Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)
EFSA* : European Food Safety Authority

CONFIDENTIAL BUSINESS COMMUNICATION
proprietary to Artechno s.a.
Rue Herman Méganck 21,Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be

BIFIDOBACTERIUM BREVE



New nomeclature name	Internal code	International passport number	Origin	Citations - Bibliography*	Bio hazard Risk assesment
Bifidobacterium Breve	ATB-BBE-804	LMG 13208	Infant, intestine	<u>Primary succession of Bifidobacteria drives pathogen resistance in neonatal microbiota assembly</u>	BCCM* statement: Qualification 1. Absence of resistance to antimycotics used for medical treatment of yeast infections in cases where viable cells are added to the food or feed chain. QPS EFSA* statement: Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials.
				<u>Recent developments in probiotics: An emphasis on Bifidobacterium</u>	
				<u>Comparative genomics of the Bifidobacterium brevetaxon</u>	
				<u>Role of Bifidobacteria in Human and Animal Health and Biotechnological Applications</u>	
				<u>Recent Development of Probiotic Bifidobacteria for Treating Human Diseases</u>	

Legend:
Citations-Bibliography* : *Please click on the underlined phrase in the citations - bibliography column to access the scientific publications*
BCCM *: *Belgian Coordinated Collections of Microorganisms*
QPS -EFSA*: *Qualified presumption of safety” (status provides a harmonized safety assessment approach used by EFSA)*
EFSA* : *European Food Safety Authority*

CONFIDENTIAL BUSINESS COMMUNICATION
proprietary to Artechno s.a.
Rue Herman Méganck 21,Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be

POWDER SPECIFICATIONS:

BACILLUS sp.

GENERAL PRODUCT SPECIFICATIONS	
DESCRIPTION	Powder of freeze-dried (Lyophilized) dietary microorganisms / Food suppl. for healthy people (3+ year old)
HS CODE	30029000
CONCENTRATIONS CFU / g	From 100 millions (1,0 E+08) to 100 Billions (1,0 E+11) .
APPEARANCE	White to beige powder
ODOR / TASTE	Intense sweet fermentation
GRANULOMETRY	60 mesh
DRY MATTER %	>93
BULK DENSITY (g/dm3)	600 - 800
PACKAGING	LDPE / ALU Bags 5 - 10 - 20 Kgs
MYCROBIOLOGICAL ANALYZE	Check TDS
HEAVY METALS	Check TDS
SHELF LIFE	3 Years if properly stored in a dry place at room temperature.

Quality certifications	
ORIGIN	The product is obtained by fermentation at Artechno’s facilities, in Belgium.
FSSC 22000	Updated Dec.2024
HALAL CERTIFICATE	Halal Expertise European research centre for halal industry
KOSHER CERTIFICATE	Shomre Hadas - Kosher Belgium
ALLERGEN STATEMENT	List of Allergens in compliance with Regulation (EU) No 1169/2011
EFSA FOOD SAFETY PRODUCT - STATEMENT	Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials
QUALITY DOCUMENTS	TDS, MSDS, COA/COC
GMO FREE	Product in compliance with Reg. (EC) No 1829/2003 & No 1830/2003
BSE/TSE FREE	product in compliance with Reg. (EC) No 999/2001
PESTICIDES	The product is in compliance with Reg. (EC) 839/2008
NON IRRADIATED PRO	Product in compliance with EU Dir. No 1999/2/EC
VEGEARIANS & VEGANS	Product suitable for Vegetarians and Vegans

POWDER SPECIFICATIONS:

LACTOBACILLUS sp. & BIFIDOBACTERIUM sp.

PRODUCT SPECIFICATIONS		QUALITY CERTIFICATIONS	
DESCRIPTION	Powder of freeze-dried (Lyophilized) dietary microorganisms / Food suppl. for healthy people (3+ year old)	ORIGIN	The product is obtained by fermentation at Artechno’s facilities, in Belgium.
HS CODE	30029000	FSSC 22000	Updated Dec.2024
CONCENTRACIONS CFU / g	From 100 millions (1,0 E+08) to 100 Billions (1,0 E+11) .	HALAL CERTIFICATE	Halal Expertise European research centre for halal industry
APPEARANCE	White to beige powder	KOSHER CERTIFICATE	Shomre Hadas - Kosher Belgium
ODOR / TASTE	Intense sweet fermentation	ALLERGEN STATEMENT	List of Allergens in compliance with Regulation (EU) No 1169/2011
GRANULOMETRY	60 mesh	EFSA FOOD SAFETY PRODUCT - STATEMENT	Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials
DRY MATTER %	>93	QUALITY DOCUMENTS	TDS, MSDS, COA/COC
BULK DENSITY (g/dm3)	600 - 800	GMO FREE	Product in compliance with Reg. (EC) No 1829/2003 & No 1830/2003
PACKAGING	LDPE / ALU Bags 5 - 10 - 20 Kgs	BSE/TSE FREE	product in compliance with Reg. (EC) No 999/2001
MYCROBIOLOGICAL ANALYZE	Check TDS	PESTICIDES	The product is in compliance with Reg. (EC) 839/2008
HEAVY METALS	Check TDS	NON IRRADIATED PRO	Product in compliance with EU Dir. No 1999/2/EC
SHELF LIFE	2 Years if properly stored in a dry place (preferably -20°C).The product not subject to modifications when stored at room temperature for 1 or 2 days during delivery transport logistic.	VEGEARIANS & VEGANS	Product suitable for Vegetarians and Vegans

POWDER SPECIFICATIONS:

SACCHAROMYCES BOULARDII

GENERAL PRODUCT SPECIFICATIONS	
DESCRIPTION	Powder of freeze-dried (Lyophilized) dietary microorganisms / Food suppl. for healthy people (3+ year old)
HS CODE	21021010
CONCENTRACIONS CFU / g	From 100 millions (1,0 E+08) to 20 Billions (2,0 E+10) .
APPEARANCE	White to beige powder
ODOR / TASTE	Intense sweet fermentation
GRANULOMETRY	60 mesh
DRY MATTER %	>93
BULK DENSITY (g/dm3)	600 - 800
PACKAGING	LDPE / ALU Bags 5 - 10 - 20 Kgs
MYCROBIOLOGICAL ANALYZE	Check TDS
HEAVY METALS	Check TDS
SHELF LIFE	36 months date of production, if stored 25°C, store closed in original packaging (avoid exposure to direct light and contact with air and excessive humidity)

QUALITY CERTIFICATIONS	
ORIGIN	The product is obtained by fermentation at Artechno's facilities, in Belgium.
FSSC 22000	Updated Dec.2024
HALAL CERTIFICATE	Halal Expertise European research centre for halal industry
KOSHER CERTIFICATE	Shomre Hadas - Kosher Belgium
ALLERGEN STATEMENT	List of Allergens in compliance with Regulation (EU) No 1169/2011
EFSA FOOD SAFETY PRODUCT - STATEMENT	Qualification 1.The strains should not harbour any acquired antimicrobial resistance genes to clinically relevant antimicrobials
QUALITY DOCUMENTS	TDS, MSDS, COA/COC
GMO FREE	Product in compliance with Reg. (EC) No 1829/2003 & No 1830/2003
BSE/TSE FREE	product in compliance with Reg. (EC) No 999/2001
PESTICIDES	The product is in compliance with Reg. (EC) 839/2008
NON IRRADIATED PRO	Product in compliance with EU Dir. No 1999/2/EC
VEGEARIANS & VEGANS	Product suitable for Vegetarians and Vegans

CONTACT



Mail: M.Diaz@artechno.be
Mobil: +32 499 044 550
Linkedin: [mauro-diaz-269a216a](#)

Mauro DIAZ - Biotech Business Developer.

MSc. in Development, Environment & Society.

Gembloux University (Belgium) & Agronomist engineer UPAO (Peru)

With over 10 years of experience as technical business developer in Probiotics sector.

Currently leading and developing global businesses in health and food ingredients. His main sector activities are prebiotics, probiotics, and postbiotics as health ingredients.

His target is to identify new market opportunities and reinforce long-term business relationships with Artechno's international partners.

Artechno s.a.

Rue Herman Méganck 21, Parc scientifique Crealys
B-5032 Isnes-Gembloux, Belgium
www.artechno.be