



Supplementary Material

Table S1. List of food additives according to the US FDA and their major classified function.

Food additive	Formula	Molecular weight (g/mol)	Purity (%)	Weighted amount (g)	Rehydration concentration	Final test concentration	Brand	Lot	Major function class
Arabinose	C ₅ H ₁₀ O ₅	150,13	100,00	0,15	1M	0,1M	USB	70047,000	Flavor enhancer, flavoring agent or adjuvant
Xylose	C ₅ H ₁₀ O ₅	150,10	99,00	0,15	1M	0,1M	Sigma	053K00131	Flavoring agent or adjuvant, nutritive sweetener
Rhamnose	C ₆ H ₁₂ O ₅ · H ₂ O	182,20	99,00	0,18	1M	0,1M	Sigma	058K0695	Flavoring agent or adjuvant
Mannose	C ₆ H ₁₂ O ₆	180,16	99,00	0,18	1M	0,1M	Sigma	BCBC4173V	Flavoring agent or adjuvant
Fructose	C ₆ H ₁₂ O ₆	180,16	100,00	0,18	1M	0,1M	Sigma	125K01611	Nutritive sweetener
Mannitol	C ₆ H ₁₄ O ₆	182,17	100,00	0,18	1M	0,1M	Sigma	034K0061	Anticaking agent or free-flow agent, flavor enhancer, flavoring agent or adjuvant, formulation aid, lubricant or release agent, non-nutritive sweetener, solvent or vehicle
Sucrose	C ₁₂ H ₂₂ O ₁₁	342,30	100,00	0,34	1M	0,1M	Daejung	S0784RE1	Nutritive sweetener
Sorbitol	C ₆ H ₁₄ O ₆	182,17	97,00	0,19	1M	0,1M	Daejung	S0503QC1	Color or coloring adjunct, drying agent, flavoring agent or adjuvant, humectant, nutrient supplement, nutritive sweetener, pH control agent, solvent or vehicle, stabilizer or thickener, texturizer
Glucose	C ₆ H ₁₂ O ₆	180,16	99,50	0,18	1M	0,1M	Sigma	SLBS2877V	Anticaking agent or free-flow agent, color or coloring adjunct, drying agent, flavor enhancer, flavoring agent or adjuvant, humectant, lubricant or release agent, nutritive sweetener, solvent or vehicle, stabilizer or thickener
Maltose	C ₁₂ H ₂₂ O ₁₁ · H ₂ O	360,31	100,00	0,36	1M	0,1M	USB	109469,000	Nutritive sweetener
Trehalose	C ₁₂ H ₂₂ O ₁₁ · 2H ₂ O	378,33	99,00	0,38	1M	0,1M	Sigma	SLBV3123	Flavoring agent or adjuvant
Alginate acid	(C ₅ H ₇ O ₆) _n	10,00 – 600,00	100,00	0,30	1M	0,1M	Sigma	127H0923	Emulsifier, thickener, stabilizer
Starch	(C ₆ H ₁₀ O ₅) _n	-	100,00	0,30	1M	0,1M	Daejung	S0371PG1	Anticaking agent or free-flow agent, drying agent, flavoring agent or adjuvant, formulation aid, humectant, non-nutritive sweetener, nutritive sweetener, solvent or vehicle, stabilizer or thickener, texturizer
Gelatin	-	-	-	0,02	2%	0,2%	Daejung	G0001PB1	Anticaking agent or free-flow agent, drying agent, flavoring agent or adjuvant, formulation aid, humectant, processing aid, solvent or vehicle, stabilizer or thickener, surface-finishing agent, texturizer
Albumin	-	-	-	0,02	2%	0,2%	Sigma	SLBQ9036V	Firming agent, formulation aid, nutrient supplement, processing aid, propellant, stabilizer or thickener, surface-active agent, surface-finishing agent, texturizer
Pepsin	-	-	-	0,02	2%	0,2%	Sigma	SLCC6249	Enzyme
Peptone Soy	-	-	-	0,02	2%	0,2%	Daejung	P2758OH1	Flavor enhancer, flavoring agent or adjuvant
Yeast extract	-	-	-	0,02	2%	0,2%	BD Bacto	8015615	Flavor enhancer, flavoring agent or adjuvant, malting or fermenting aid, nutrient supplement
L-Arginine	C ₆ H ₁₄ N ₄ O ₂	174,20	98,00	0,18	1M	0,1M	Sigma	017K0664	Nutrient supplement
L-Tryptophan	C ₁₁ H ₁₂ N ₂ O ₂	204,23	99,00	0,21	1M	0,1M	Kanto chemical co.	403N2187	Nutrient supplement
L-Phenylalanine	C ₉ H ₁₁ NO ₂	165,19	99,00	0,17	1M	0,1M	Junsei	2012L1433	Flavor enhancer, flavoring agent or adjuvant, nutrient supplement
L-Ornithine	C ₅ H ₁₂ N ₂ O ₂ · ClH	168,62	99,00	0,17	1M	0,1M	Sigma	109K1468	Flavoring agent or adjuvant
L- Glutamic acid	C ₅ H ₈ NNaO ₄ · 2H ₂ O	169,11	99,00	0,17	1M	0,1M	Sigma	SLBF7449V	Flavoring agent or adjuvant, nutrient supplement
L-Proline	C ₅ H ₉ NO ₂	115,10	100,00	0,12	1M	0,1M	Sigma	72H0774	Flavor enhancer, flavoring agent or adjuvant, nutrient supplement
L-Lysine	C ₆ H ₁₄ N ₂ O ₂ · HCl	182,65	98,00	0,19	1M	0,1M	Sigma	108K1321	Nutrient supplement
L-Serine	C ₃ H ₇ NO ₃	105,09	99,00	0,11	1M	0,1M	Georgiachem	S454621R	Flavor enhancer, flavoring agent or adjuvant, nutrient supplement
L-Threonine	C ₄ H ₉ NO ₃	119,12	99,00	0,12	1M	0,1M	Georgiachem	T262958H	Flavor enhancer, flavoring agent or adjuvant, nutrient supplement
L-Aspartic Acid	C ₄ H ₇ NO ₄	133,10	99,00	0,13	1M	0,1M	Georgiachem	A977123A	Flavor enhancer, flavoring agent or adjuvant, nutrient supplement
L-Tyrosine	C ₉ H ₁₁ NO ₃	181,19	99,00	0,18	1M	0,1M	Samchun chemicals	101917	Flavoring agent or adjuvant, nutrient supplement
L-Histidine	C ₆ H ₉ N ₃ O ₂	209,64	99,00	0,21	1M	0,1M	Daejung	H2821RL1	Flavor enhancer, flavoring agent or adjuvant, nutrient supplement
Sodium Phosphate	Na ₂ HPO ₄	141,96	99,00	0,14	1M	0,1M	Sigma	075K2520	Anticaking agent or free-flow agent, antimicrobial agent, drying agent, emulsifier or emulsifier salt, flavor enhancer, flavoring agent or adjuvant, malting or fermenting aid, pH control agent, stabilizer or thickener, texturizer
Sodium L-tartrate	C ₄ H ₄ Na ₂ O ₆ · 2H ₂ O	230,08	99,00	0,23	1M	0,1M	Sigma	07425BC	Emulsifier or emulsifier salt, pH control agent, sequestrant
Sodium bicarbonate	NaHCO ₃	84,01	99,80	0,08	1M	0,1M	Yakuri	312132812	Emulsifier or emulsifier salt, flavor enhancer, flavoring agent or adjuvant, leavening agent, nutrient supplement, pH control agent, processing aid, solvent or vehicle
Malic acid	C ₄ H ₆ O ₅	134	98,00	0,14	1M	0,1M	Sigma	SLBS7651	Flavor enhancer, flavoring agent or adjuvant, pH control agent, synergist
Pyruvic acid	C ₃ H ₄ O ₃	80,06	100,00	0,06	1M	0,1M	Daejung	P3470SG1	Flavoring agent or adjuvant
Betaine	C ₅ H ₁₁ NO ₂	117,15	98,00	0,12	1M	0,1M	Daejung	B1549PE1	Flavoring agent or adjuvant
Taurine	C ₂ H ₇ NO ₃ S	125,15	99,00	0,13	1M	0,1M	Sigma	12515DU	Flavoring agent or adjuvant
Riboflavin	C ₁₇ H ₂₀ N ₄ O ₆	376,37	100,00	0,19	1M	0,1M	Sigma	069k1585	Color or coloring adjunct, flavor enhancer, flavoring agent or adjuvant, nutrient supplement
Thiamine hydrochloride	C ₁₂ H ₁₇ ClN ₄ O ₄ · HCl	337,27	98,00	0,17	1M	0,1M	Daejung	T0027QL1	Flavoring agent or adjuvant, nutrient supplement
L- Ascorbic acid	C ₆ H ₈ O ₆	176,12	99,00	0,18	1M	0,1M	TCI	KNBGE	Antimicrobial agent, antioxidant, color or coloring adjunct, dough strengthener, flavor enhancer, flavoring agent or adjuvant, nutrient supplement, pH control agent, sequestrant, stabilizer or thickener

Table S2. Main components declared on selected commercial probiotics in South Korea and the Philippines.

Product type	Declared microorganisms*	Country of origin	Formulations / ingredients
Tablet	* <i>L. reuteri</i> DSM 17938	Sweden	Isomaltose, xylitol, palm oil, calcium stearate, strawberry flavor, citric acid.
Soft gel capsule	<i>B. breve</i> subsp. <i>breve</i> M-16v	Japan	Oligosaccharides, amino acids, vitamin B6, B12, B3, niacinamide, folic acid, pantothenic acid, biotin, inositol, riboflavin, iron, potassium, phosphorus, sodium
	<i>B. infantis</i> subsp. <i>infantis</i> M-63		
	<i>B. longum</i> BB536		
	<i>E. faecalis</i> TH10		
	<i>L. acidophilus</i> ATCC SD5212		
	<i>L. brevis</i> NBRC 3345		
	<i>L. bulgaricus</i> NBRC 13953		
	<i>Lc. casei</i> TO-A		
Powder	<i>L. fermentum</i> NBRC 3071	Denmark	Mannitol, inulin, silicon dioxide
	<i>L. helveticus</i> subsp. <i>jugurti</i> BBRC 3809		
	<i>Lp. plantarum</i> TO-A		
	<i>S. thermophilus</i> NBRC1397		
	<i>Lc. rhamnosus</i> GG and PXN 54		
Powder	<i>Lc. casei</i> PXN 37	United Kingdom	Fructo-oligosaccharides (FOS)
	<i>S. thermophilus</i> PXN 66		
	<i>B. breve</i> PXN 25		
	<i>L. acidophilus</i> PXN 35		
	<i>B. infantis</i> (child specific) PXN 27		
Powder	<i>L. bulgaricus</i> PXN 39	South Korea	Vegetable cream, FOS, yogurt powder flavor
	<i>L. acidophilus</i>		
	<i>B. longum</i>		
Powder	<i>B. bifidum</i> BGN4	South Korea	FOS, maltose, galacto-oligosaccharide, corn powder, seaweed calcium, vitamin-mineral mix, aloe.
	<i>B. longum</i> BORI		
	<i>L. acidophilus</i> A031		
	<i>E. faecium</i> BH06		
Gummy candies	<i>Lc. lactis</i>	South Korea	Sucrose, starch syrup, D-Sorbitol, gelatin, yogurt flavor, citric acid, titanium dioxide, pectin, coating oil, carnauba wax, soybean phospholipids trisodium citrate, skim milk, stevia
	<i>S. thermophilus</i>		
	<i>E. faecium</i>		
	<i>L. plantarum</i>		

* The nomenclature of the former genus *Lactobacillus* has been retained in the Table as given in the product labels. Full information on the new genera can be obtained from: Zheng et al. (2020). A taxonomic note on the genus *Lactobacillus*: Description of 23 novel genera, emended description of the genus *Lactobacillus* Beijerinck 1901, and union of *Lactobacillaceae* and *Leuconostocaceae*. *Int. J. System. Evol. Microbiol.* **70**: 2782-2858. DOI 10.1099/ijsem.0.004107.