SUPLEMENTARY MATERIAL

Supplementary method 1. Quantities of the reactants used to produce the formulation for milks.

EA				
Ingredient	**Quantity (g)**	**Quantity (mL)**	**High-Fibre food both CDs minimum**	**CD excedent**
Fish oil	0.25			
Vanillin	0.06			
Ascorbyl palmitate	0.015			
α-tocopherol	0.06			
Soy lecithin	0.1			
α-CD	1			
β-CD	1			
α-CD + β-CD	2		2	0
Maltodextrins	0.3			
Honey		1		
Buffer pH 6.51		4		

SV/SS				
Ingredient	**Quantity (g)**	**Quantity (mL)**	**High-Fibre food both CDs minimum**	**CD excedent**
Fish oil	0.25			
Vanillin	0.06			
Ascorbyl palmitate	0.015			
α-tocopherol	0.06			
Soy lecithin	0.1			
α-CD	1.25			
β-CD	1.25			
α-CD + β-CD	2.5		1.5	1
Maltodextrins	0.3			
Honey		1		
Buffer pH 6.51		4		

DS/DR				
Ingredient	**Quantity (g)**	**Quantity (mL)**	**High-Fibre food both CDs minimum**	**CD excedent**
Fish oil	0.25			
Vanillin	0.06			
Ascorbyl palmitate	0.015			
α-tocopherol	0.06			
Soy lecithin	0.1			
α-CD	1.75			
β-CD	1.75			
α-CD + β-CD	3.5		1	2.5
Maltodextrins	0.3			
Honey		1		

Buffer pH 6.51		4		

Supplementary method 2. Quantities of the reactants used to produce the formulation for milkshakes.

Chocolate				
Ingredient	**Quantity (g)**	**Quantity (mL)**	**High-Fibre food both CDs minimum**	**CD excedent**
Fish oil	0.313			
Vanillin	0.075			
Ascorbyl palmitate	0.0125			
α-tocopherol	0.075			
soy lecithin	0.15			
α-CD	1.5			
β-CD	1.5			
α-CD + β-CD	3		1.2	1.8
Maltodextrins	0.3			
Honey		1		
Buffer pH 6.51		2		
Natural Yogurt, Strawberry and fruit salad				
Ingredient	**Quantity (g)**	**Quantity (mL)**	**High-Fibre food both CDs minimum**	**CD excedent**
Fish oil	0.313			
Vanillin	0.075			
Ascorbyl palmitate	0.0125			
α-tocopherol	0.075			
soy lecithin	0.15			
α-CD	1			
β-CD	1			
α-CD + β-CD	2		2	0
Maltodextrins	0.3			
Honey		1		
Buffer pH 6.51		2		

Supplementary method 3. Quantities of the reactants used to produce the formulation for yogurts.

Natural (YN)				
Ingredient	**Quantity (g)**	**Quantity (mL)**	**High-Fibre food both CDs minimum**	**CD excedent**
Fish oil	0.5			
Vanillin	0.12			
Ascorbyl palmitate	0.02			
α-tocopherol	0.12			
soy lecithin	0.3			
α-CD	2			
β-CD	2			
α-CD + β-CD	4		1.77	2.23
Maltodextrins	0.15			
Honey		1		
Buffer pH 6.51		3		
Skim sugary natural (YNR)				
Ingredient	**Quantity (g)**	**Quantity (mL)**	**High-Fibre food both CDs minimum**	**CD excedent**
Fish oil	0.5			
Vanillin	0.12			
Ascorbyl palmitate	0.02			
α-tocopherol	0.12			
soy lecithin	0.3			
α-CD	2			
β-CD	2			
α-CD + β-CD	4		1.17	2.83
Maltodextrins	0.15			
Honey		1		
Buffer pH 6.51		3		
Strawberry (YF), Vanilla (YV) and cookies (YG)				
Ingredient	**Quantity (g)**	**Quantity (mL)**	**High-Fibre food both CDs minimum**	**CD excedent**
Fish oil	0.5			
Vanillin	0.12			
Ascorbyl palmitate	0.02			
α-tocopherol	0.12			
soy lecithin	0.3			
α-CD	2			
β-CD	2			
α-CD + β-CD	4		2.5	1.5

Maltodextrins	0.15			
Honey		1		
Buffer pH 6.51		3		

Supplementary method 4. Reactant quantities for the elaboration of the formulation for creams.

Chocolate cream (CBO)				
Ingredient	**Quantity (g)**	**Quantity (mL)**	**High-Fibre food both CDs minimum**	**CD excedent**
Fish oil	0.5			
Vanillin	0.12			
Ascorbyl palmitate	0.02			
α-tocopherol	0.12			
soy lecithin	0.3			
α-CD	2			
β-CD	2			
α-CD + β-CD	4		3.33	0.67
Maltodextrins	0.15			
Honey		1		
Buffer pH 6.51		3		
Skim Chocolate cream (CCNN)				
Ingredient	**Quantity (g)**	**Quantity (mL)**	**High-Fibre food both CDs minimum**	**CD excedent**
Fish oil	0.5			
Vanillin	0.12			
Ascorbyl palmitate	0.02			
α-tocopherol	0.12			
soy lecithin	0.3			
α-CD	2			
β-CD	2			
α-CD + β-CD	4		2.1	1.9
Maltodextrins	0.15			
Honey		1		
Buffer pH 6.51		3		

Supplementary figure 1. Schematic representation to create the fish oil formulation.

Fish oil
+
Vanillin
Ascorbyl
palmitate
α-tocopherol

Soy lecithin

Emulsion

CDs

Encapsulated

Honey

Milk food model

Maltodextrins

Final formulation to add
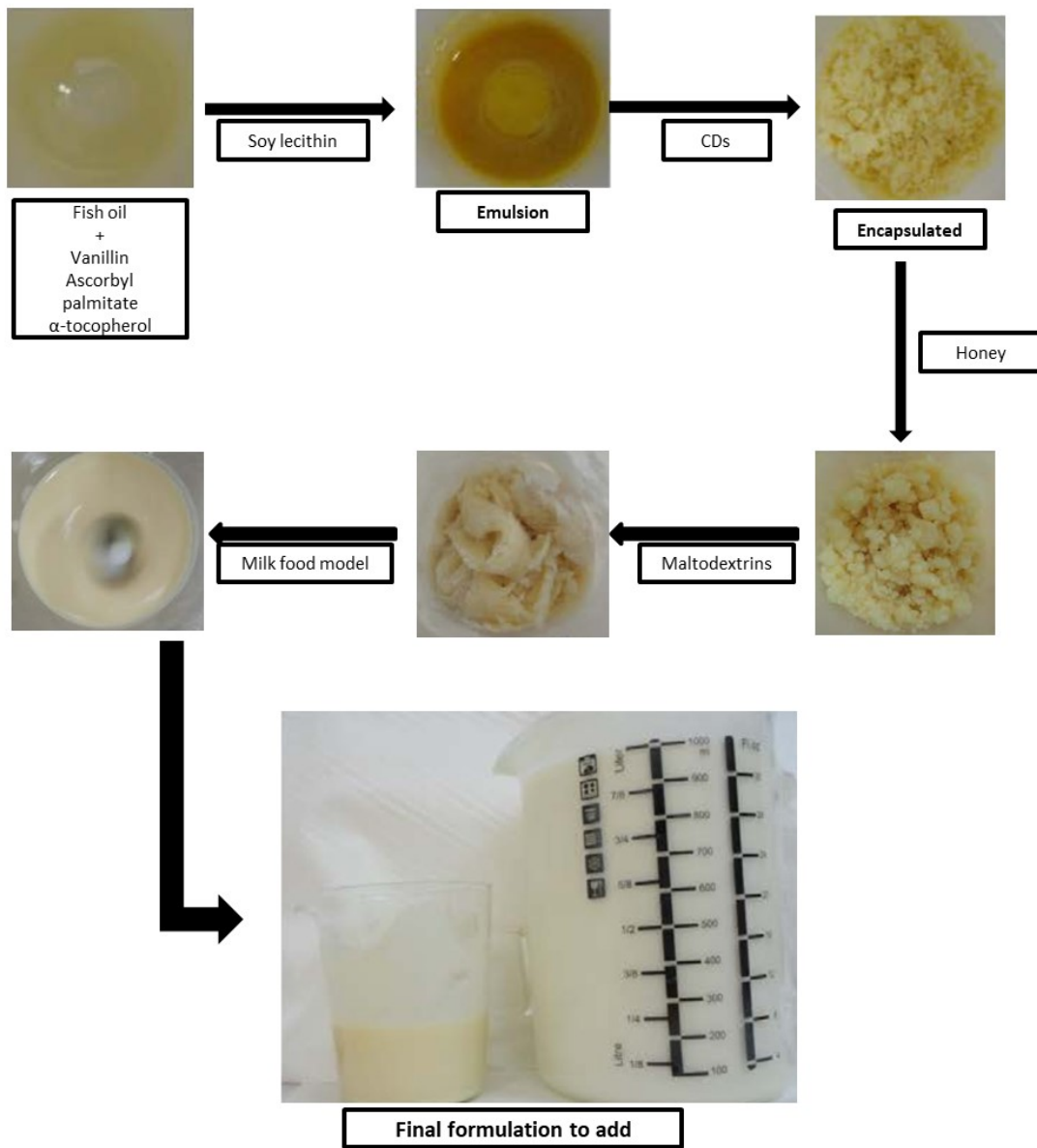
Supplementary Figure 2. Sedimentation (bright-field microscopy) and appearance of milk formulation tested at day 15 for EA (A), SV (B), SS (C), DR (D) and DS (E), (c) control, (1) first formulation and (2) final formulation. (F) Milk stability test at 20 ºC. Encapsulated at day 0 (G) and on day15 (H).

Supplementary Figure 3. Thermal stability of the five fortified milks after 2 minutes at 20 (A), 50 (B) and 75 ºC (C). A slight aggregation can be seen in pot (D) after the experiment at 75 ºC.
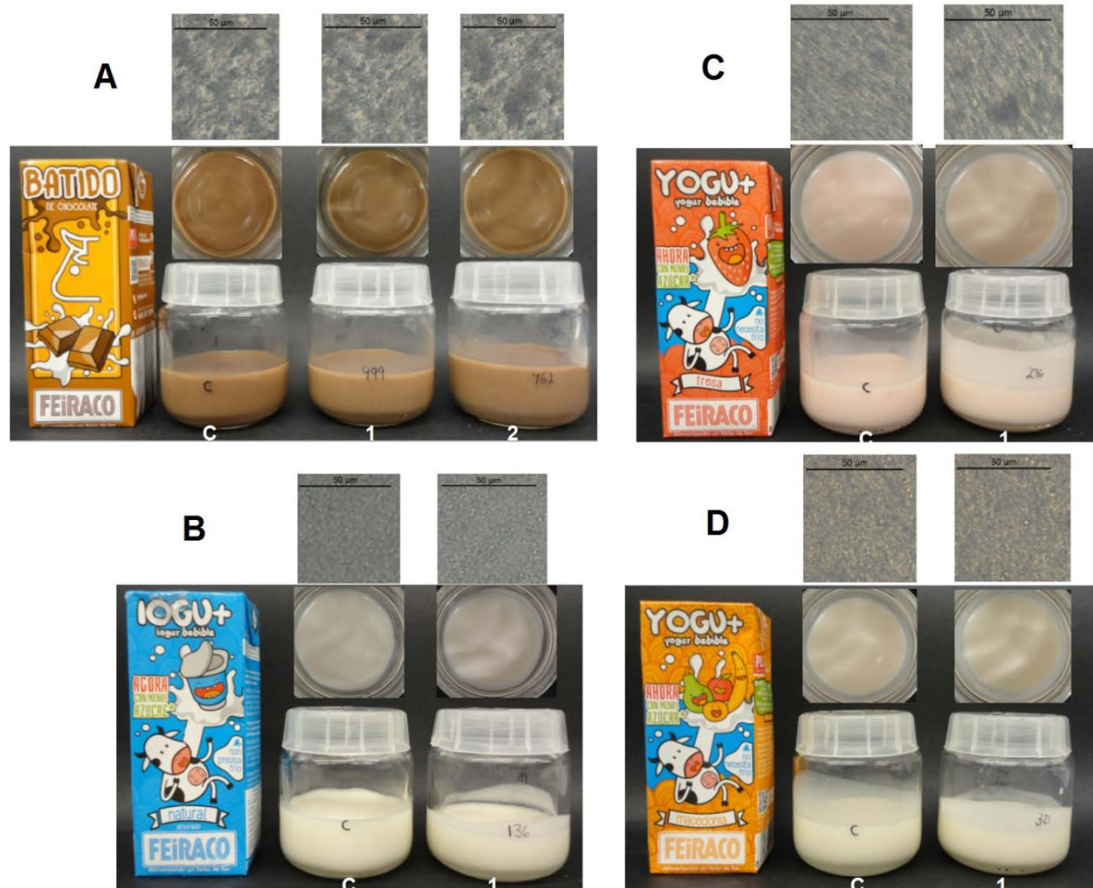
Supplementary Figure 4. Sedimentation (bright-field microscopy) and appearance of milk formulation tested at day 15 in chocolate milkshake (A), natural milkshake (B), strawberry milkshake (C) and fruit salad milkshake (D); (c) control, (1) first formulation (in A) and (2) final formulation (in A).

Supplementary Figure 5. Sedimentation (bright-field microscopy) and appearance of milk formulation tested at day 15 in skim natural yogurt (A), vanilla yogurt (B), cookie yogurt (C), natural yogurt (D) and strawberry yogurt (E); (c) control, (1) first formulation (in A and B) and (2) final formulation (in A and B).

Supplementary Figure 6. Sedimentation (bright-field microscopy) and appearance of milk formulation tested at day 15 in chocolate cream (A) and skim chocolate cream (B); (c) control and (1) final formulation.
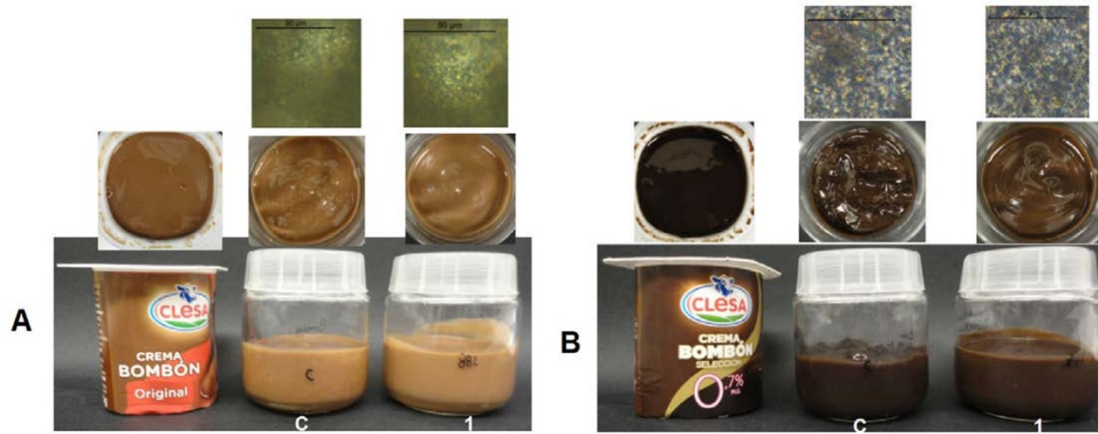
Supplementary Figure 7. Bioaccessibility assay. (AX) Feiraco® products, (BX) Feiraco® milkshakes, (CX) Clesa® yogurts and creams. A1-2, B1-2 and C1-2: appearance of the samples before *in vitro* digestion. A3, B3 and C3: appearance of the samples after digestion. A4-5, B4-5 and C4-5. Samples prepared for analysis. D series, commercial omega-3 milk sample. E, collection of samples. F, plate without reactants and G, plate after enzymatic determination using commercial kit.
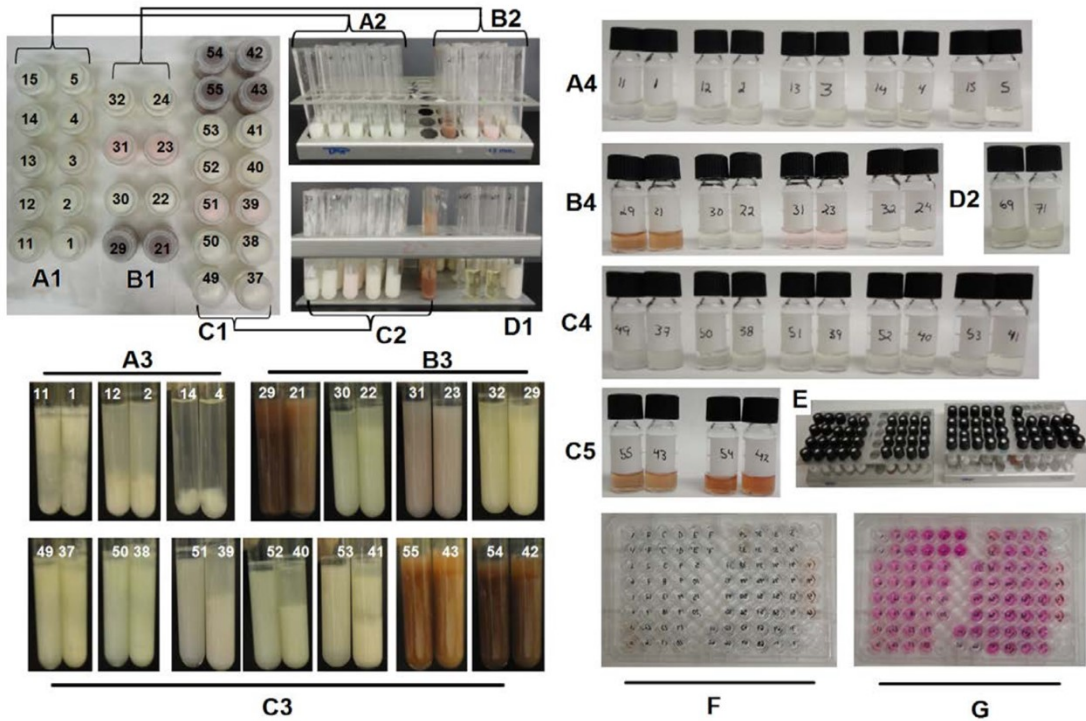
Supplementary Table 1. Average pH value and SD of all Feiraco® and Clesa® products (control and supplemented). The average value of the total measured at days 0, 8, 15, 20 and 30 is presented

		Value	SD (+/-)
Milk	Control	6.65	0.36
	Fortified	6.64	0.12
Chocolate milkshake	Control	6.62	0.25
	Fortified	6.60	0.25
Milkshakes	Control	4.15	0.65
	Fortified	4.75	0.70
Yogurt	Control	4.25	0.40
	Fortified	4.32	0.20
Cream	Control	6.50	0.48
	Fortified	6.30	0.35

Supplementary material 1. Complete sensory analysis report.

Data of participants.

- Participants: 22 ± 5
  - Gender: Male, 37.83 % / Female, 62.12 %
  - Age: Less than_20, 45.46 % / 21-30, 37.88 % / more than 30, 16.66 %.
  - Smoker: Yes, 14.40 % / No, 85.60 %.

Between each product, the panel ate cookies or smelled coffee to neutralize previous odour and taste.

General questions.

- Are you worried about your diet?
  - Not at all: 0 %
  - A little: 14 %
  - Sometimes: 50 %
  - Always: 36 %
- How often do you consume fortified omega-3 products?
  - Every day: 22 %
  - Once per week: 34 %
  - Twice or three times per week: 22 %
  - Once per month: 22 %
- How often do you consume fortified fibre products?
  - Every day: 68 %
  - Once per week: 11 %
  - Twice or three times per week: 11 %
  - Once per month: 10 %
- How often do you consume milk?
  - Every day: 92 %
  - Once per week: 0 %
  - Twice or three times per week: 8 %
  - Once per month: 0 %
- How often do you consume fortified omega-3 milk?
  - Every day: 0 %
  - Once per week: 20 %
  - Twice or three times per week: 80 %
  - Once per month: 0 %
- How often do you consume milkshakes?

- o Every day: 64 %
- o Once per week: 0 %
- o Twice or three times per week: 36 %
- o Once per month: 0 %
- How often do you consume yogurts?
  - o Every day: 38 %
  - o Once per week: 29 %
  - o Twice or three times per week: 33 %
  - o Once per month: 0 %
- How often do you consume creams?
  - o Every day: 8 %
  - o Once per week: 52 %
  - o Twice or three times per week: 24 %
  - o Once per month: 16 %

Table 1: Report of the final formulation of each fortified omega-3 product.

Product	Would you consume this product?		Would you buy the product?		
	Yes (%)	No (%)	Yes (%)	Maybe (%)	No (%)
EA	90	10	30	30	40
SV	82	18			
SS	81	19			
DR	72	28			
DS	75	25			
BC	79	21	52	26	22
IN	83	17			
IF	83	17			
IM	86	14			
YN	83	17	79	21	0
YNR	62	38			
YV	79	21			
YF	88	12			
YG	92	8			
CBO	87	13	76	24	0
CCNN	82	18			