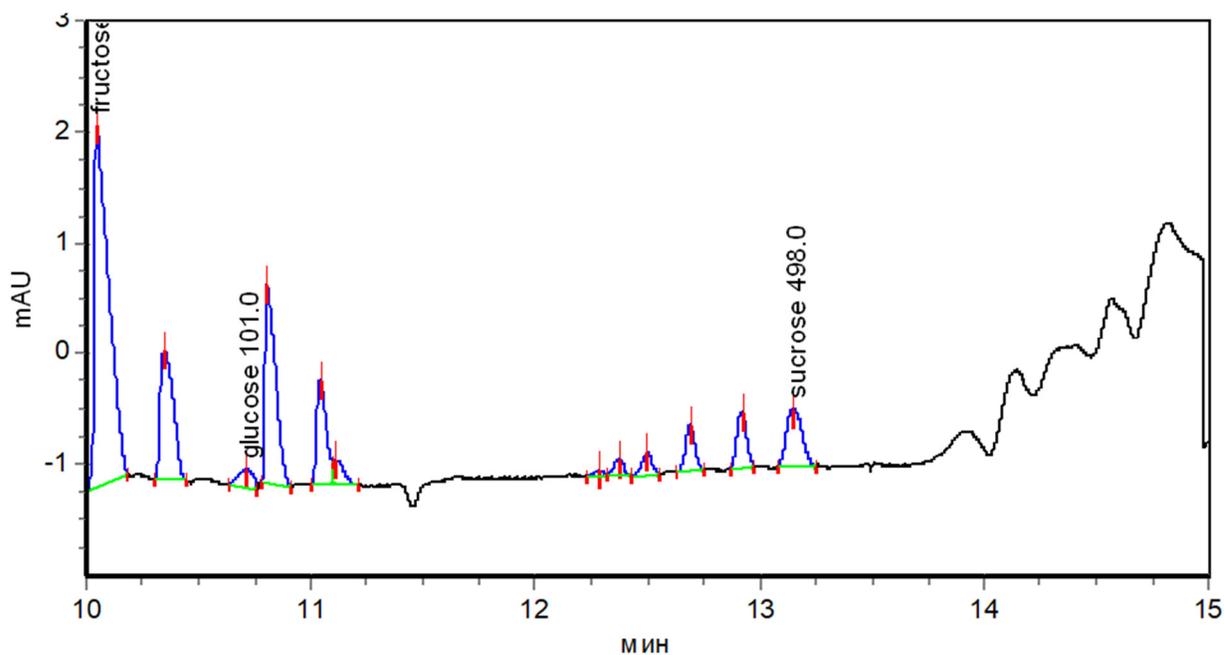


**Table S1.** The concentration of carbohydrates during continuous cultivation of *Bifidobacterium adolescentis* at OF concentration of 7 mg mL<sup>-1</sup>.

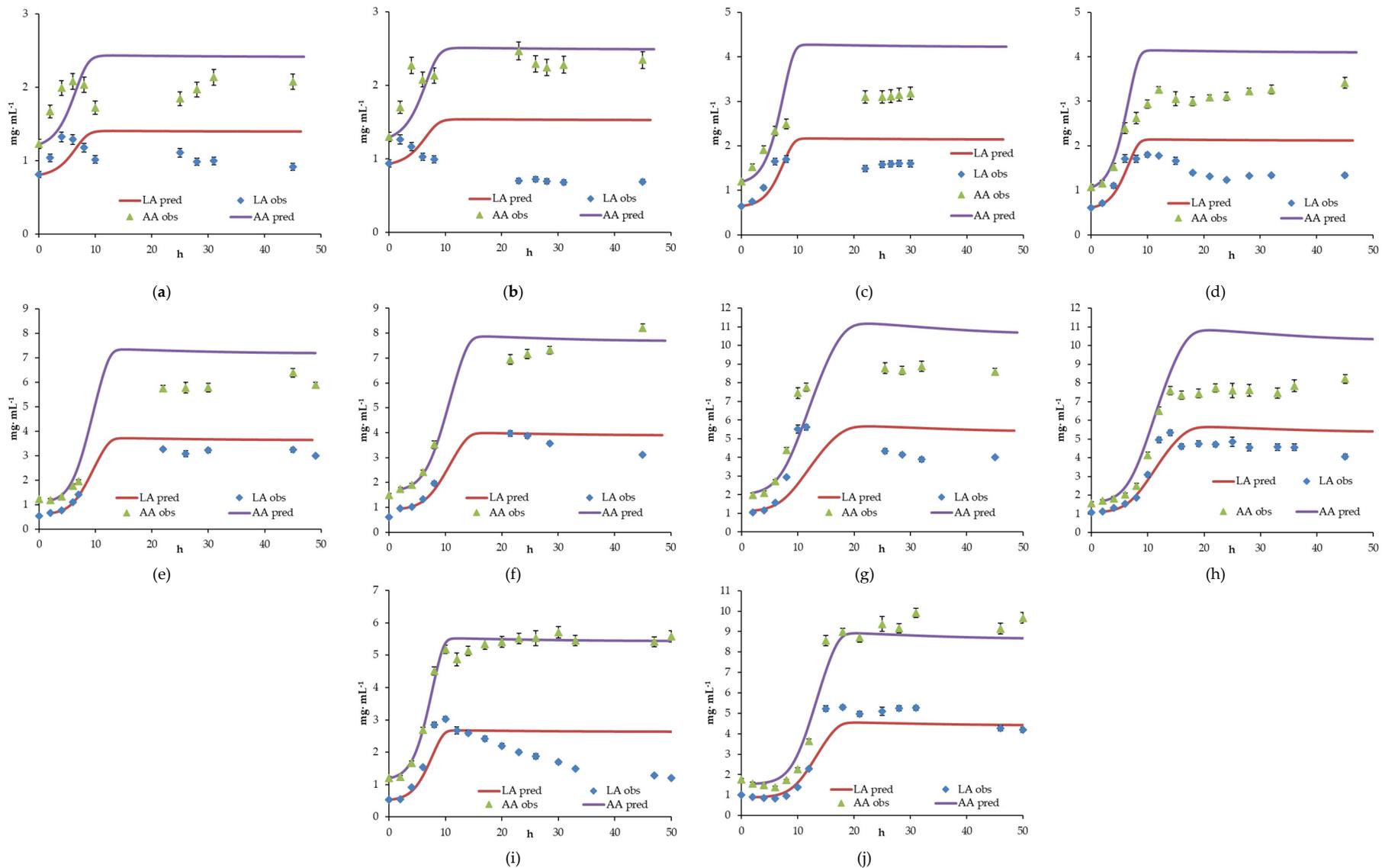
Time h	Fructose μg mL <sup>-1</sup>	Glucose μg mL <sup>-1</sup>	Sucrose μg mL <sup>-1</sup>	Sum of fructans μg mL <sup>-1</sup>	Number of homologs
0	1302	71.42	373.9	1747.32	8
2	1275	-	121.1	1396.1	6
14	55.12	-	-	55.12	3
23	-	-	46.29	46.29	1
54	34.96	-	-	34.96	3
75	8.975	-	-	8.975	4

**Table S2.** The concentration of carbohydrates during continuous cultivation of *Bifidobacterium adolescentis* at OF concentration of 12 mg mL<sup>-1</sup>.

Time h	Fructose μg mL <sup>-1</sup>	Glucose μg mL <sup>-1</sup>	Sucrose μg mL <sup>-1</sup>	Sum of fructans μg mL <sup>-1</sup>	Number of homologs
0	1944	101	498	2543	9
6	2058	63.67	476.4	2598.0	9
10	2230	-	455.3	2685.37	9
25	33.44	-	-	33.44	3
50	37.66	-	-	37.66	3
98	39.24	-	-	39.24	3



**Figure S1.** Electropherogram for the determination of oligosaccharides during cultivation of *Bifidobacterium adolescentis* at OF inlet concentration of 12 mg mL<sup>-1</sup> at 0 hours of growth.



**Figure S2.** Experimentally observed ( $LA_{obs}$  and  $AA_{obs}$ ) and predicted by the model ( $LA_{pred}$  and  $AA_{pred}$ ) concentrations of lactic acid (LA) and acetic acid (AA) in the bifidobacteria monoculture under conditions simulating the distal intestine, at  $D = 0.04 \text{ h}^{-1}$  and concentrations OF  $2 \text{ mg mL}^{-1}$  (a, b);  $5 \text{ mg mL}^{-1}$  (c, d);  $10 \text{ mg mL}^{-1}$  (e, f);  $15 \text{ mg mL}^{-1}$  (g, h);  $7 \text{ mg mL}^{-1}$  (i); and  $12 \text{ mg mL}^{-1}$  (j).