

Probiotic Potential of a Novel Vitamin B2-Overproducing *Lactobacillus plantarum* Strain, HY7715, Isolated from Kim-chi

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Supplementary Materials

Table S1. Confirmation of riboflavin production in CMD of LAB isolated from kimchi.

No.	Species identification (16S rDNA)	CDM growth		Riboflavin (mg/L)	Roseoflavin resistance (150µg/mL)
		1st	2nd		
1	<i>L. plantarum</i>	+	+	-	-
2	<i>L. plantarum</i>	+	++	0.847 ± 0.065	+
3	<i>L. plantarum</i>	+	++	0.503 ± 0.078	+
4	<i>L. plantarum</i>	+	-	-	-
5	<i>L. plantarum</i>	+	+	-	-
6	<i>L. farciminis</i>	+	+	-	-
7	<i>L. plantarum</i>	+	-	-	-
8	<i>L. plantarum</i>	+	+	-	-
9	<i>L. plantarum</i>	+	++	0.939 ± 0.095	+
10	<i>L. fermentum</i>	+	++	0.098 ± 0.056	-
11	<i>L. plantarum</i>	+	+	-	-
12	<i>L. plantarum</i>	+	+	-	-
13	<i>L. plantarum</i>	+	-	-	-
14	<i>L. plantarum</i>	+	++	0.475 ± 0.107	+
15	<i>L. plantarum</i>	+	-	-	-
16	<i>L. plantarum</i>	+	-	-	-
17	<i>L. plantarum</i>	+	-	-	-
18	<i>L. plantarum</i>	+	-	-	-
19	<i>L. plantarum</i>	+	+	0.035 ± 0.138	-
20	<i>L. plantarum</i>	+	++	0.046 ± 0.016	-
21	<i>L. fermentum</i>	+	++	0.492 ± 0.060	+
22	<i>L. plantarum</i>	+	++	0.161 ± 0.071	-
23	<i>L. fermentum</i>	+	-	-	-
24	<i>L. plantarum</i>	+	-	-	-
25	<i>L. plantarum</i>	+	+	0.121 ± 0.184	-
26	<i>L. plantarum</i>	+	+	0.086 ± 0.012	-
27	<i>L. plantarum</i>	+	++	0.119 ± 0.079	-
28	<i>L. plantarum</i>	+	++	0.091 ± 0.066	-
29	<i>L. plantarum</i>	+	-	-	-
30	<i>L. plantarum</i>	+	+	0.139 ± 0.106	-

31	<i>L. plantarum</i>	+	-	-	-
32	<i>L. plantarum</i>	+	+	-	-
33	<i>L. plantarum</i>	+	-	-	-
34	<i>L. plantarum</i>	+	+	-	-
35	<i>L. plantarum</i>	+	++	0.118 ± 0.091	-
36	<i>L. plantarum</i>	+	+	0.128 ± 0.049	-
37	<i>L. paracasei</i>	+	-	-	-
38	<i>L. paracasei</i>	+	-	-	-
39	<i>Lc. lactis subsp.</i>	+	-	-	-
40	<i>Lc. lactis subsp.</i>	+	+	-	-
41	<i>Lc. lactis subsp.</i>	+	-	-	-
42	<i>Lc. lactis subsp.</i>	+	++	0.096± 0.016	-
43	<i>Lc. lactis subsp.</i>	+	-	-	-
44	<i>Lc. lactis subsp.</i>	+	+	-	-
45	<i>Lc. lactis subsp.</i>	+	+	0.109± 0.184	-
46	<i>L. plantarum</i>	+	-	-	-

Data were shown as mean ± standard error.

Table S2. Composition of AIN-93G and AIN-93G_RD diet.

AIN-93G		AIN-93G_RD	
Diet ingredient	Composition (g/kg)	Diet ingredient	Composition (g/kg)
Casein	200.0	Casein	200.0
L-Cystine	3.0	L-Cystine	3.0
Corn Starch	397.48	Corn Starch	397.48
Maltodextrin	132.0	Maltodextrin	132.0
Sucrose	100	Sucrose	100
Soybean Oil	70.0	Soybean Oil	70.0
Cellulose	50.0	Cellulose	50.0
Mineral Mix, AIN-93G-MX	35.0	Mineral Mix, AIN-93G-MX	35.0
Vitamin Mix, AIN-93-VX	10.0	Vitamin Mix, AIN-93-VX without riboflavin	10.0
Choline Bitartrate	2.5	Choline Bitartrate	2.5
TBHQ, antioxidant	0.014	TBHQ, antioxidant	0.014

Vitamin Mix, AIN-93-VX contains 0.6 g/kg of riboflavin. For the production of AIN-93G_RD feed, a vitamin mix lacking only riboflavin was made to order, and the same amount of dextrin as riboflavin was added in riboflavin-free AIN-93-VX.

Table S3. Antibiotic resistance and minimum inhibitory concentrations (MIC).

Antibiotics	Cut-off Values* (mg/L)	MIC (mg/L)	Interpretation
Ampicillin	2	0.25	S
Vancomycin	n.r	256	n.r
Gentamycin	16	2	S
Kanamycin	64	64	S
Streptomycin	n.r	192	n.r
Erythromycin	1	0.5	S
Clindamycin	2	0.5	S
Tetracycline	32	3	S
Chloramphenicol	8	8	S

* Cut-off values published by the European Committee on Antimicrobial Susceptibility Testing (EUCAST, <http://www.eucast.org/>), EFSA; n.r, not required; s, sensitive.

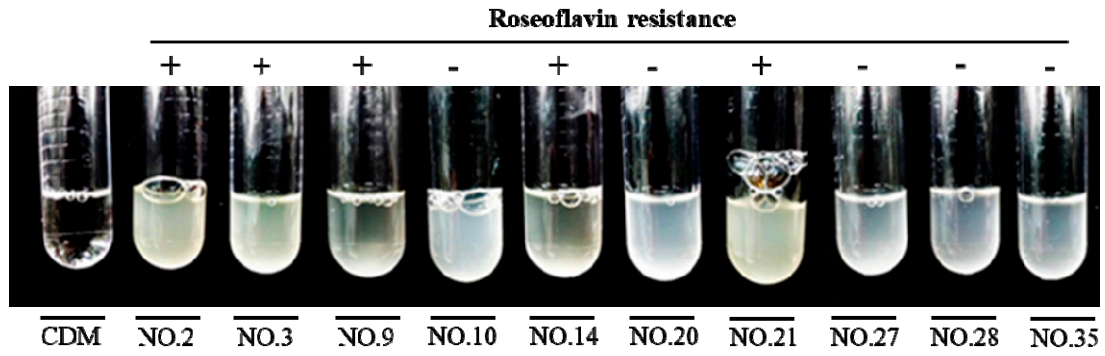


Figure S1. Example of qualitative detection of riboflavin produced by change of color from white to yellow in riboflavin-free chemically defended media (CDM). .

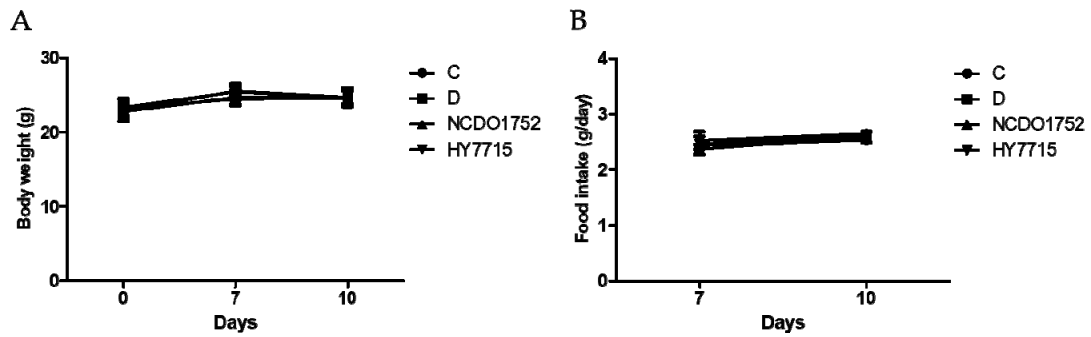


Figure S2. Changes in (A) body weight and (B) food intake in the experimental groups. The results are expressed as mean \pm standard error of means (SEM).



Figure S3. Confirmation of β -hemolytic reaction of HY7715 in blood agar plate. No β -hemolytic reaction.