

Characterization and Protective Properties of Lactic Acid Bacteria Intended to Be Used in Probiotic Preparation for Honeybees (*Apis mellifera* L.)—An In Vitro Study

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Table S2. Survival of lactic acid bacteria (LAB) strains in sugar syrups A, B, and C after 24 and 48 h of incubation. Results are presented as mean \pm standard deviation (SD), and all values were divided by 10^7 in order to simplify the table. Differences regarding the survival of LAB strains in sugar syrups were tested using the Kruskal–Wallis test (KWW test), followed by a multiple comparison test (MCT) to indicate significant differences between the groups at $p < 0.05$. Statistical differences in the survival of the LAB strains are indicated with letters: _{A,B} indicating the groups with a statistical difference.

LAB strain	Control			Syrup A		Syrup B		Syrup C		<i>p</i> -value KWW test
	0h	24h	48h	24h	48h	24h	48h	24h	48h	
<i>A. kunkeei</i> DSM 12361	88.87 \pm 48.09	305.25 \pm 57.19	71.13 \pm 25.07 ^A	58.53 \pm 21.09	4.70 \pm 1.78	34.50 \pm 13.46	0.75 \pm 0.30 ^A	62.25 \pm 15.76	38.25 \pm 4.86	<i>p</i> =0.002
<i>P. acidilactici</i> 18/1	55.37 \pm 69.77	214.00 \pm 82.93	103.43 \pm 45.57 ^A	2.53 \pm 1.67	0.16 \pm 0.05 ^A	21.38 \pm 12.88	0.24 \pm 0.05	10.78 \pm 6.42	0.22 \pm 0.11	<i>p</i> =0.026
<i>P. acidilactici</i> 21/1	65.08 \pm 77.89	207.48 \pm 129.24	35.18 \pm 8.00 ^{A,B}	30.45 \pm 30.88	0.16 \pm 0.05 ^A	53.40 \pm 25.34	0.69 \pm 0.01 ^B	2.29 \pm 1.90	0.97 \pm 0.31	<i>p</i> ^A =0.008; <i>p</i> ^B =0.023
<i>P. pentosaceus</i> 25/1	43.30 \pm 30.66	133.50 \pm 24.75	110.10 \pm 25.49 ^A	4.70 \pm 0.85	1.10 \pm 0.27	18.20 \pm 4.10	0.81 \pm 0.25 ^A	28.00 \pm 21.95	13.10 \pm 8.01	<i>p</i> = 0.013
<i>P. pentosaceus</i> 5/2	132.12 \pm 32.15	536.00 \pm 177.04	213.75 \pm 13.77 ^{A,B}	55.03 \pm 5.59	6.75 \pm 0.99 ^A	56.73 \pm 3.93	6.75 \pm 0.99 ^B	32.28 \pm 4.53	12.05 \pm 1.91	<i>p</i> ^A =0.0178; <i>p</i> ^B =0.0178
<i>P. pentosaceus</i> 7/1	194.16 \pm 104.55	775.50 \pm 108.33	474.75 \pm 51.17 ^A	33.70 \pm 5.53	8.15 \pm 0.62	51.43 \pm 6.89	8.15 \pm 0.62	47.23 \pm 6.77	4.25 \pm 2.18 ^A	<i>p</i> =0.002
<i>P. pentosaceus</i> OK-S	76.32 \pm 21.89	368.00 \pm 39.19	3.60 \pm 1.82	12.10 \pm 9.42	0.98 \pm 0.68	24.60 \pm 19.87	1.23 \pm 0.26	1.23 \pm 0.26	1.43 \pm 1.10	<i>p</i> >0.05
<i>P. acidilactici</i> 4/1	174.10 \pm 315.59	696.25 \pm 343.71	208.00 \pm 100.66 ^A	7.23 \pm 2.12	3.43 \pm 2.81	23.00 \pm 22.08	1.03 \pm 0.05 ^A	38.08 \pm 4.17	5.65 \pm 1.91	<i>p</i> =0.008
<i>P. acidilactici</i> 11/3	176.06 \pm 59.46	771.25 \pm 182.53	533.00 \pm 93.75 ^A	25.03 \pm 12.00	24.83 \pm 27.05	41.10 \pm 7.79	1.03 \pm 0.05 ^A	35.60 \pm 9.97	11.00 \pm 2.93	<i>p</i> =0.004
<i>P. pentosaceus</i> 14/1	176.23 \pm 119.20	457.50 \pm 71.36	438.25 \pm 57.31 ^A	82.00 \pm 13.98	27.80 \pm 17.29	45.28 \pm 29.79	3.40 \pm 0.78 ^A	47.23 \pm 8.81	11.15 \pm 2.69	<i>p</i> =0.002
<i>L. casei</i> 12AN	209.05 \pm 37.93	918.75 \pm 94.11	464.25 \pm 149.29 ^A	48.50 \pm 33.97	53.13 \pm 9.26	50.18 \pm 2.21	4.78 \pm 1.53 ^A	67.40 \pm 14.15	22.95 \pm 2.89	<i>p</i> =0.002