

## Supplementary data

**Table S1.** Correlation, contribution and representation of the variables with the dimensions of the summary PCA based on factor loadings.

| Variable                               | Correlation |        |        |        | Contribution (%) |       |       |       | cos <sup>2</sup> |       |       |       |
|----------------------------------------|-------------|--------|--------|--------|------------------|-------|-------|-------|------------------|-------|-------|-------|
|                                        | Dim1        | Dim2   | Dim3   | Dim4   | Dim1             | Dim2  | Dim3  | Dim4  | Dim1             | Dim2  | Dim3  | Dim4  |
| Antibfm <i>E. coli</i>                 | 0.608       | 0.121  | −0.578 | 0.090  | 4.21             | 0.236 | 12.47 | 0.433 | 0.369            | 0.015 | 0.335 | 0.008 |
| Antibfm <i>S. aureus</i>               | 0.521       | −0.302 | 0.271  | 0.404  | 3.09             | 1.482 | 2.732 | 8.658 | 0.271            | 0.091 | 0.073 | 0.163 |
| Antibfm <i>L. monocytogens</i>         | −0.207      | 0.189  | 0.779  | −0.188 | 0.49             | 0.583 | 22.60 | 1.878 | 0.043            | 0.036 | 0.606 | 0.035 |
| Rvbfm <i>E. coli</i>                   | 0.626       | −0.581 | 0.037  | 0.277  | 4.48             | 5.476 | 0.051 | 4.080 | 0.392            | 0.337 | 0.001 | 0.077 |
| Rvbfm <i>S. aureus</i>                 | 0.669       | 0.220  | −0.135 | 0.352  | 5.11             | 0.785 | 0.676 | 6.584 | 0.448            | 0.048 | 0.018 | 0.124 |
| Rvbfm <i>L. monocytogens</i>           | 0.602       | 0.334  | 0.515  | 0.355  | 4.14             | 1.810 | 9.888 | 6.698 | 0.363            | 0.111 | 0.265 | 0.126 |
| <b>Anti- <i>E. coli</i> (spot)</b>     | −0.827      | 0.291  | 0.139  | 0.164  | 7.81             | 1.373 | 0.719 | 1.435 | 0.685            | 0.085 | 0.019 | 0.027 |
| Anti- <i>S. aureus</i> (spot)          | −0.748      | −0.097 | −0.178 | −0.020 | 6.39             | 0.154 | 1.179 | 0.022 | 0.560            | 0.009 | 0.032 | 0.000 |
| Anti- <i>L. monocytogens</i> (spot)    | −0.072      | 0.529  | 0.301  | −0.428 | 0.06             | 4.544 | 3.385 | 9.698 | 0.005            | 0.280 | 0.091 | 0.183 |
| Anti- <i>E. coli</i> (well)            | −0.526      | 0.548  | −0.332 | 0.050  | 3.16             | 4.873 | 4.111 | 0.134 | 0.276            | 0.300 | 0.110 | 0.003 |
| Anti- <i>S. aureus</i> (well)          | −0.450      | 0.728  | −0.448 | −0.009 | 2.32             | 8.602 | 7.485 | 0.004 | 0.203            | 0.530 | 0.201 | 0.000 |
| Anti- <i>L. monocytogens</i> (well)    | −0.576      | 0.568  | −0.379 | 0.235  | 3.79             | 5.246 | 5.351 | 2.938 | 0.331            | 0.323 | 0.144 | 0.055 |
| <b>pH</b>                              | 0.701       | −0.602 | 0.121  | 0.018  | 5.60             | 5.877 | 0.542 | 0.018 | 0.491            | 0.362 | 0.015 | 0.000 |
| Antiadh. <i>E. coli</i>                | 0.178       | 0.828  | 0.082  | 0.395  | 0.36             | 11.14 | 0.249 | 8.282 | 0.032            | 0.686 | 0.007 | 0.156 |
| Antiadh. <i>S. aureus</i>              | 0.213       | 0.787  | 0.387  | 0.249  | 0.52             | 10.05 | 5.594 | 3.285 | 0.045            | 0.619 | 0.150 | 0.062 |
| <b>Antiadh. <i>L. monocytogens</i></b> | 0.194       | 0.938  | 0.242  | 0.114  | 0.43             | 14.29 | 2.177 | 0.687 | 0.038            | 0.880 | 0.058 | 0.013 |
| Co-agg. <i>E. coli</i>                 | 0.714       | 0.153  | −0.175 | −0.523 | 5.82             | 0.378 | 1.141 | 14.48 | 0.509            | 0.023 | 0.031 | 0.273 |
| Co-agg. <i>S. aureus</i>               | 0.753       | 0.272  | 0.035  | −0.556 | 6.48             | 1.204 | 0.045 | 16.42 | 0.567            | 0.074 | 0.001 | 0.310 |
| Co-agg. <i>L. monocytogens</i>         | 0.658       | 0.514  | 0.372  | −0.372 | 4.94             | 4.297 | 5.156 | 7.349 | 0.433            | 0.265 | 0.138 | 0.139 |
| Lactic acid production                 | −0.718      | 0.435  | 0.295  | −0.006 | 5.89             | 3.071 | 3.252 | 0.002 | 0.516            | 0.189 | 0.087 | 0.000 |
| <b>DPPH scav (CFS)</b>                 | 0.926       | 0.105  | −0.014 | 0.337  | 9.98             | 0.187 | 0.008 | 6.022 | 0.858            | 0.011 | 0.000 | 0.114 |
| DPPH scav (IC)                         | 0.452       | 0.725  | −0.267 | −0.028 | 2.33             | 8.532 | 2.658 | 0.042 | 0.204            | 0.525 | 0.071 | 0.001 |
| DPPH scav (ICE)                        | 0.598       | 0.588  | −0.357 | −0.121 | 4.09             | 5.618 | 4.743 | 0.772 | 0.358            | 0.346 | 0.127 | 0.015 |
| <b>EPS quantification</b>              | −0.871      | −0.109 | 0.318  | 0.037  | 8.67             | 0.195 | 3.781 | 0.074 | 0.759            | 0.012 | 0.101 | 0.001 |

Abbreviation: Dimension (Dim), representation quality (cos2), anti-biofilm (Antibfm), remove biofilm (Rvbfm), spot-on-lawn method (spot), well diffusion method (well), antiadhesive on Caco-2 cells (Antiadh), co-aggregation (Co-agg), scavenging activity (scav), cell free supernatant (CFS), intact cells (IC) and intracellular extract (ICE). In bold the variables that contributed most to the construction of the principal component analysis.

**Table S2.** Description of each *Lactobacillus* cluster by quantitative variables.

| Cluster                                                        | Variable                            | V Test | Mean Category | Overall Mean | P Value |
|----------------------------------------------------------------|-------------------------------------|--------|---------------|--------------|---------|
| Cluster 1: <i>Lb. plantarum</i> F2, 2F8, M10, M12, F3 and FB13 | Anti- <i>S. aureus</i> (well)       | 2.80   | 12.83 mm      | 11.90mm      | 0.0049  |
|                                                                | Anti- <i>L. monocytogens</i> (well) | 2.61   | 12.33 mm      | 11.80 mm     | 0.0088  |
|                                                                | Anti- <i>E. coli</i> (well)         | 2.24   | 13.33 mm      | 12.80 mm     | 0.024   |
|                                                                | Anti- <i>E. coli</i> (spot)         | 2.02   | 39.66 mm      | 36.80 mm     | 0.043   |
|                                                                | Rvbfm <i>E. coli</i>                | -2.15  | 57.61%        | 59.96%       | 0.031   |
|                                                                | pH                                  | -2.79  | 3.79          | 3.88         | 0.00542 |
| Cluster 2: <i>Lb. plantarum</i> NCA3, NCA4 and FB3             | pH                                  | 1.97   | 4.00          | 3.88         | 0.047   |
|                                                                | DPPH scav (IC)                      | -2.01  | 19.39%        | 26.61%       | 0.043   |
|                                                                | Anti- <i>L. monocytogens</i> (well) | -2.09  | 11 mm         | 11.80 mm     | 0.035   |
|                                                                | Antiadh. <i>E. coli</i>             | -2.20  | 67.68%        | 81.94%       | 0.027   |
|                                                                | Antiadh. <i>L. monocytogens</i>     | -2.24  | 68.65%        | 79.57%       | 0.024   |
|                                                                | Anti- <i>S. aureus</i> (well)       | -2.52  | 10.33 mm      | 11.90 mm     | 0.011   |
| Cluster 3: <i>Lb. paracasei</i> FB1                            | DPPH scav (CFS)                     | 2.72   | 55.67%        | 52.50%       | 0.0063  |
|                                                                | Co-agg. <i>S. aureus</i>            | 2.39   | 28.34%        | 7.71%        | 0.016   |
|                                                                | Rvbfm <i>S. aureus</i>              | 2.33   | 76.27%        | 64.25%       | 0.019   |
|                                                                | Co-agg. <i>L. monocytogens</i>      | 2.18   | 20.10%        | 8.63%        | 0.029   |
|                                                                | DPPH scav (ICE)                     | 2.16   | 21.16%        | 12.02%       | 0.030   |
|                                                                | Co-agg. <i>E. coli</i>              | 2.03   | 23.38%        | 10.67%       | 0.041   |
|                                                                | Rvbfm <i>L. monocytogens</i>        | 1.96   | 78.01%        | 70.80%       | 0.049   |
|                                                                | Anti- <i>E. coli</i> (spot)         | -2.26  | 25 mm         | 36.80 mm     | 0.023   |
|                                                                | Anti- <i>S. aureus</i> (spot)       | -2.38  | 23 mm         | 29.20 mm     | 0.017   |
|                                                                | EPS                                 | -2.56  | 315.33 mg/l   | 424.04       | 0.010   |

Abbreviation: V. test (Kuiper's test), remove biofilm (Rvbfm), spot-on-lawn method (spot), well diffusion method (well), antiadhesive on Caco-2 cells (Antiadh), co-aggregation (Co-agg), scavenging activity (scav), cell free supernatant (CFS), intact cells (IC) and intracellular extract (ICE). ( $P < 0.05$ ) were significantly different determined with Principal Component Analysis (PCA) using FactoMineR software.