**Supplementary Data**

**Table S1. Ingredients for the sourdough and dough for baking white pan breads**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Control* bread</th>
<th>72-2-bread</th>
<th>L73-bread</th>
<th>KACC11451-bread</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sourdough</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flour (g)</td>
<td>-</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Water (g)</td>
<td>-</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>LAB (mL)**</td>
<td>-</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Sponge dough</td>
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<td></td>
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</tr>
<tr>
<td>Flour (g)</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
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<tr>
<td>Yeast (mL) ***</td>
<td>2</td>
<td>2</td>
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<td>2</td>
</tr>
<tr>
<td>Water (g)</td>
<td>42</td>
<td>42</td>
<td>42</td>
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</tr>
<tr>
<td>Dough</td>
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</tr>
<tr>
<td>Flour (g)</td>
<td>30</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Salt (g)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Sugar (g)</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Skim milk (g)</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Butter (g)</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
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<tr>
<td>Water (mL)</td>
<td>23</td>
<td>13</td>
<td>13</td>
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<tr>
<td>Sourdough (g)</td>
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<td>20</td>
<td>20</td>
<td>20</td>
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<tr>
<td>Sponge dough (g)</td>
<td>114</td>
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</table>

* Control bread, the bread made of dough without LAB inoculation; 72-2-bread, the bread made of sourdough fermented by the isolate 72-2 strain; L73-bread, the bread made of sourdough fermented by the commercial strain L73; KACC11451-bread, the bread made of sourdough fermented by the type strain KACC11451. **Lactic acid bacteria were prepared by cultivating three strains of *Lactobacillus plantarum* in MRS broth at 30°C for 12 hr followed by centrifugation and resuspension with saline to adjust the bacterial concentration to 10^8 CFU/mL. *** Dried yeast, *Saccharomyces cerevisiae* KCTC 12776BP, was used in the population of 10^10 CFU/g.
Table S2. Biochemical characteristics of *Lactobacillus plantarum* strains tested in this study

<table>
<thead>
<tr>
<th>Compounds</th>
<th><em>L. plantarum</em> SPC-SNU 72-2</th>
<th><em>L. plantarum</em> Lallemand L-73</th>
<th><em>L. plantarum</em> KACC11451</th>
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<tbody>
<tr>
<td>Control</td>
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</tr>
<tr>
<td>Glycerol</td>
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<td>-</td>
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</tr>
<tr>
<td>Erythritol</td>
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<td>-</td>
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</tr>
<tr>
<td>D-arabinose</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>L-arabinose</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>D-ribose</td>
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<td>+</td>
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</tr>
<tr>
<td>D-xylose</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>L-xylose</td>
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</tr>
<tr>
<td>D-adenitol</td>
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<td>-</td>
<td>-</td>
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<tr>
<td>Methyl-β-D-xylopyranoside</td>
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</tr>
<tr>
<td>D-galactose</td>
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<td>+</td>
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</tr>
<tr>
<td>D-glucose</td>
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<td>+</td>
<td>+</td>
</tr>
<tr>
<td>D-fructose</td>
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<td>+</td>
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<tr>
<td>D-mannose</td>
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</tr>
<tr>
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<tr>
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<tr>
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</table>
Fig. S1. Volatile compounds in breads produced with LAB-applied sourdough. Error bars present represent the standard deviations, and the different letters on the error bars indicate significant differences within a group of volatile compound group ($p < 0.05$).