**Appendix A. Supplementary data**

**Table 1.** Purification results of bacteriocin produced by of *L. casei* KLDS 1.0338.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Purification treatment | Volumn  (mL) | Protein concentration  (mg/mL) | Antimicrobial activity against *S. aureu*s ATCC 25923 (IU/mL) | Specific activity  (IU/mg) | Purification index  (fold) |
| CFS | 1000.00 | 24.28 | 306.41 | 12.62 | 1.00 |
| Ammonium sulfate precipitation | 50.00 | 72.65 | 988.40 | 13.60 | 1.08 |
| SP SepharoseTM fast flow | 1.00 | 2.90 | 289.61 | 99.87 | 7.43 |

**Table 2.** Coded and actual values of the media components and culture conditions tested for the BBD.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Factors | Symbols | Coded Levels | | |
|  |  | -1 | 0 | +1 |
| Sucrose (%) | A | 0.5 | 1.0 | 1.5 |
| Soy peptone (%) | B | 2 | 3 | 4 |
| pH | C | 5 | 6 | 7 |
| Temperature (ºC) | D | 32.5 | 35 | 37.5 |

**Table 3.** ANOVA for the effects of sucrose (A), soy peptone (B), pH (C) and temperature (D) on antimicrobial activity against *S. aureus* and *E. coli*.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source | Sum of Squares | df | Mean Square | *F*-Value | *p*-Value |
| Against *S. aureus* | | | | | |
| Model | 86.69 | 14 | 6.19 | 33.72 | < 0.0001 |
| Residual | 2.57 | 14 | 0.18 |  |  |
| Lack of Fit | 2.28 | 10 | 0.23 | 3.15 | 0.1402 |
| Pure Error | 0.29 | 4 | 0.072 |  |  |
| Cor Total | 89.26 | 28 |  |  |  |
| R2 = 0.9712, R2Adj = 0.9424, R2Pred = 0.8477 | | | | | |
| Against *E. coli* | | | | | |
| Model | 207.87 | 14 | 14.85 | 23.87 | < 0.0001 |
| Residual | 8.71 | 14 | 0.62 |  |  |
| Lack of Fit | 7.54 | 10 | 0.75 | 2.58 | 0.1866 |
| Pure Error | 1.17 | 4 | 0.29 |  |  |
| Cor Total | 216.58 | 28 |  |  |  |
| R2 = 0.9598, R2Adj = 0.9196, R2Pred = 0.7910 | | | | | |