**Table S1** The identification results of endophytic bacteria L11

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test items** | **Result** 16h | **Test items** | **Result** 16h | **Test items** | **Result** 16h | **Test items** | **Result** 16h |
| Control | - | α- D-glucose | + | Gelatin | + | Hydroxyphenylacetic acid | - |
| Dextrin | + | D-mannose | - | Glycine L-proline | - | Methyl pyruvate | - |
| D-Maltose | + | D-Fructose | + | Alanine | - | D-methyl lactate | + |
| D-trehalose | + | D-galactose | - | Arginine | - | Lactic Acid | + |
| D-cellulose disaccharide | - | 3-Methyl-D-glucose | - | L-Aspartic acid | + | Citric acid | + |
| Gentiobiose | - | D-Fucose | - | L-glutamate | w | α-ketoglutaric acid | + |
| Saccharose | + | L-Fucose | - | Histidine | + | D-Malic Acid | - |
| Turanose | - | L-Rhamnose | - | L-pyroglutamic acid | - | L-Malic Acid | + |
| Stachyose | - | Inosine | + | Serine | + | Bromosuccinic acid | w |
| Positive control | + | 1% Sodium lactate | + | Lincomycin | - | Nalidixic acid | + |
| pH 6.0 | + | Fusidic Acid | - | Guanidine hydrochloride | + | LiCl | + |
| pH 5.0  | + | D-serine | + | Sodium tetradecyl sulfate | - | Potassium tellurite | + |
| Raffinose | - | D-sorbitol | - | Pectin | + | Tween-40 | - |
| α- lactose | - | D- Mannitol | - | D-Galacturonic acid | + | γ- aminobutyric acid | - |
| Melibiose | - | D-arabitol | - | L-Galactolactone | + | α- Hydroxybutyric acid | - |
| β- Methyl-D-glucoside | - | Inositol | - | D-gluconic acid | + | β- Hydroxy-D, L-butyric acid | + |
| D-Salicylin | + | Glycerol | + | D-Glucuronic acid | + | α- ketobutyrate | w |
| N-Acetyl-D-glucosamine | + | D-glucose-6-phosphate | + | Glucosaldehyde amide | + | Acetoacetic acid | + |
| N-Acetyl- β- D-mannosamine | - | D-fructose-6-phosphate | + | Mucic acid | - | Propionic acid | + |
| N-acetyl-D-galactosamine | - | D-aspartic acid | - | Quinic acid | - | Acetic acid | + |
| N-acetylneuraminic acid | - | D-serine | - | Saccharic acid | - | Formic acid | + |
| 1% NaCl | + | Troleandomycin | - | Vancomycin | - | Aztreonam | + |
| 4% NaCl  | + | Rifamycin SV | + | Tetrazolium violet | - | Sodium butyrate | + |
| 8% NaCl | + | Minocycline | + | Tetrazolium blue | - | Sodium bromate | + |

Note: "+" indicates positive or usable, "-" indicates negative or unusable, and "w" indicates boundary value

**Table S2** The first step screening of Na2SeO3 culture concentration for L11 strain

|  |  |  |  |
| --- | --- | --- | --- |
| Na2SeO3 (mmol/L) | 12 h | 24 h | 48 h |
| Reduction | Se content g/L | Reduction  | Se content g/L | Reduction | Se content g/L |
| 2 | 4.9% | 0.017 | 45.5% | 0.157 | 61.28% | 0.212 |
| 5 | 1.7% | 0.015 | 16.8% | 0.145 | 52.5% | 0.454 |
| 10 | 0.65% | 0.113 | 0.65% | 0.1128 | 0.65% | 0.1128 |
| 15 | 0% | 0 | 0% | 0 | 0% | 0 |

**Table S3** The second step screening of Na2SeO3 culture concentration for L11 strain

|  |  |  |  |
| --- | --- | --- | --- |
| Na2SeO3 (mmol/L) | 12 h | 24 h | 48 h |
| Reduction | Se content g/L | Reduction  | Se content g/L | Reduction | Se content g/L |
| 2 | 48% | 0.166 | 61.39% | 0.212 | 67.2% | 0.233 |
| 3 | 29.3% | 0.152 | 66% | 0.228 | 72% | 0.374 |
| 4 | 22.4% | 0.155 | 72% | 0.498 | 73.5% | 0.509 |
| 5 | 17.5% | 0.151 | 47.6% | 0.412 | 53.6% | 0.464 |