**Figure S1:** Classification and distribution of subsystem categories found in the complete genome of *Paenibacillus* sp. VCA1, obtained by genome annotation in RASTtk v2.0 (http://rast.nmpdr.org).

**Table S1:** Inhibition of the antifungal activity of *Paenibacillus* sp. VCA1 strain against phytopathogen *Fusarium oxysporum* 45ta.

|  |  |  |
| --- | --- | --- |
| **Treatments** | **Fungal Growth Diameter (cm)** | **Inhibition Rate (%)** |
| Control *Fusarium oxysporum* 45ta | 5.6 ± 0b | 0 ± 0b |
| VCA1 vs *Fusarium oxysporum* 45ta | 2.9 ± 0.1a | 49.40 ± 1.03a |
| **DMS** | **0.16** | **1.656** |

Mean values ± standard deviation. Significant differences (*p* ≤ 0.05) between follow-up times by ANOVA/Fisher’s least significant difference (LSD) test are indicated in columns with different lowercase letters (a, b).

**Table S2:** Emulsification activity by the biosurfactants produced by *Paenibacillus* sp. VCA1 strain with two types of oils.

|  |  |  |
| --- | --- | --- |
|  | **Absorbance at λ = 540 nm in Different Types of Oil** | |
| **Treatments** | **Corn Oil** | **Olive Oil** |
| Control | 0.300 ± 0.0005b | 0.450 ± 0.0001b |
| Strain VCA1 | 0.031 ± 0.002a | 0.065 ± 0.008a |
| **DMS** | **0.004** | **0.013** |

Mean values ± standard deviation. Significant differences (*p* ≤ 0.05) between follow-up times by ANOVA/Fisher’s least significant difference (LSD) test are indicated in columns with different lowercase letters (a, b).

**Table S3:** Taxonomic parameters obtained for taxonomic assignment.

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | ***Paenibacillus* sp. P1XP2** | ***Paenibacillus polymyxa* YC0573** | ***Paenibacillus lautus* Y412MC10** |
| Similitude (%) | 98.77 | 97.44 | 95.55 |
| TETRA (Z) | 0.9877 | 0.707 | 0.9214 |
| ANIm (%) | 88.22 | 86.45 | 84.74 |
| ANIb (%) | 85.64 | 71.27 | 68.9 |
| DDH (%) | 84.5 | 73.8 | 71.3 |