Supplementary Material

Metabolomic of Halotolerant Endophytic Bacterium *Salinivibrio costicola* Isolated from *Suaeda maritima* (L.) Dumort.

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1.1 Supplementary Figures

**Supplementary Figure 1.** *Salinivibrio costicola* YSL5 cultured on modified K solid medium with sea salt for 4 days.

**Supplementary Figure 2.** A comparison of five different culture media. (A) A culture in K broth with sea salt of *S. costicola* YSL5 for 3 days. (B) A culture in PDB broth with sea salt for 3 days. (C) A culture in PDY broth with sea salt for 3 days (D) A culture in YEME broth with sea salt for 3 days. (E) A culture in YPM broth with sea salt for 3 days.
Supplementary Figure 3. (A) Total ion current (TIC) chromatogram of liquid culture broth of \textit{S. costicola} YSL5. (B) Extracted-ion chromatogram (EIC) of \textit{m/z} 543.2 [M+Na]^+, (C) EIC of \textit{m/z} 629.3 [M+Na]^+, (D) EIC of \textit{m/z} 715.4 [M+Na]^+, (E) EIC of \textit{m/z} 801.4 [M+Na]^+, (F) EIC of \textit{m/z} 887.4 [M+Na]^+, (G) EIC of \textit{m/z} 973.5 [M+Na]^+, (H) EIC of \textit{m/z} 1059.5 [M+Na]^+, (I) EIC of \textit{m/z} 1145.5 [M+Na]^+, (J) EIC of \textit{m/z} 1231.5 [M+Na]^+.
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Supplementary Figure 8. ROESY NMR spectrum (600 MHz) of 2-hydroxy-3,7,11,15-tetramethyl-5,9,13,17-tetraoxo-4,8,12,16-tetraaicosan-19-yl 3-hydroxybutanoate in in DMSO-$d_6$. 

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Supplementary Figure 9. $^1$H NMR spectrum (600 MHz) of polyhydroxybutyric acid derivatives in DMSO-$d_6$. 
Supplementary Figure 11. COSY NMR spectrum (600 MHz) of polyhydroxybutyric acid derivatives in DMSO-$d_6$.

Supplementary Figure 11. HSQC NMR spectrum (600 MHz) of polyhydroxybutyric acid derivatives in DMSO-$d_6$. 
### Supplementary Table 1. Taxon Composition List of *S. maritima* - Phylum

| Taxon name                 | Count  | Proportion (%) |
|----------------------------|--------|----------------|
| 1  | Proteobacteria             | 19,052 | 79.3701        |
| 2  | Actinobacteria             | 3,749  | 15.6182        |
| 3  | Bacteroidetes              | 484    | 2.0163         |
| 4  | Firmicutes                 | 404    | 1.6831         |
| 5  | Cyanobacteria              | 221    | 0.9207         |
| 6  | Rhodothermaeta             | 28     | 0.1166         |
| 7  | Deinococcus-Thermus        | 17     | 0.0708         |
| 8  | Verrucomicrobia            | 13     | 0.0542         |
| 9  | Chloroflexi                | 11     | 0.0458         |
| 10 | Acidobacteria              | 8      | 0.0333         |
| 11 | Saccharibacteria_TM7       | 6      | 0.025          |
| 12 | Planctomycetes             | 5      | 0.0208         |
| 13 | Bacteria_uc                | 3      | 0.0125         |
| 14 | Gemmatimonadetes           | 2      | 0.0083         |
| 15 | Fibrobacteres              | 1      | 0.0042         |

### Supplementary Table 2. Taxon Composition List of *S. maritima* - Class

| Taxon name                        | Count  | Proportion (%) |
|-----------------------------------|--------|----------------|
| 1  | Gammaproteobacteria              | 16380  | 68.2386        |
| 2  | Actinobacteria_c                 | 3714   | 15.4724        |
| 3  | Alphaproteobacteria              | 1529   | 6.3698         |
| 4  | Betaproteobacteria               | 1112   | 4.6326         |
| 5  | Bacilli                          | 370    | 1.5414         |
| 6  | Cytophagia                       | 257    | 1.0707         |
| 7  | Flavobacteria                    | 184    | 0.7665         |
| 8  | Chroobacteria                    | 174    | 0.7249         |
| 9  | Hormogoneae                      | 45     | 0.1875         |
| 10 | Clostridia                       | 26     | 0.1083         |
| 11 | Rhodothermia                     | 24     | 0.1            |
| 12 | Sphingobacteria                  | 24     | 0.1            |
| 13 | Deltaproteobacteria              | 22     | 0.0917         |
| 14 | Bacteroidia                      | 19     | 0.0792         |
| 15 | Acidimicrobia                    | 17     | 0.0708         |
| 16 | Deinococci                       | 17     | 0.0708         |
| 17 | Nitriliruptoria                  | 14     | 0.0583         |
| 18 | Oligoflexia                      | 9      | 0.0375         |
| 19 | Negativicutes                    | 5      | 0.0208         |
| 20 | Opitutae                         | 5      | 0.0208         |
### Supplementary Table 3. Taxon Composition List of *S. maritima* - Class

| Taxon name                | Count | Proportion (%) | Taxon name                | Count | Proportion (%) |
|---------------------------|-------|----------------|---------------------------|-------|----------------|
| Oceanospirillales         | 12260 | 51.0748        | Methylococcales           | 5     | 0.0208         |
| Pseudomonadales           | 3626  | 15.1058        | Planctomycetcales         | 5     | 0.0208         |
| Kineosporiales            | 2023  | 8.4278         | Puniceicoccales           | 5     | 0.0208         |
| Micrococcales             | 1396  | 5.8157         | Veillonellales            | 5     | 0.0208         |
| Burkholderiales           | 1112  | 4.6326         | Actinomarinales           | 4     | 0.0167         |
| Sphingomonadales          | 1075  | 4.4784         | Bacteriovoracales         | 4     | 0.0167         |
| Bacillales                | 355   | 1.4789         | Balneolales               | 4     | 0.0167         |
| Cytophagales              | 257   | 1.0707         | PAC000395_o               | 4     | 0.0167         |
| Rhodobacterales           | 217   | 0.904          | PAC002280_o               | 4     | 0.0167         |
| Alteromonadales           | 202   | 0.8415         | PAC002431_o               | 4     | 0.0167         |
| Flavobacteriales          | 184   | 0.7665         | Bacteria_uc               | 3     | 0.0125         |
| Oscillatoriales           | 164   | 0.6832         | Caldilineales             | 3     | 0.0125         |
| Vibionionales             | 159   | 0.6624         | Cellvibionales            | 3     | 0.0125         |
| Frankiales                | 148   | 0.6166         | Chthoniobacterales        | 3     | 0.0125         |
| Enterobacteriales         | 111   | 0.4624         | Erysipelotrichales        | 3     | 0.0125         |
| Corynecibacterales        | 95    | 0.3958         | Halanaerobiales           | 3     | 0.0125         |
| Nostocales                | 45    | 0.1875         | Oligoflexales             | 3     | 0.0125         |
| Propionibacteriales       | 37    | 0.1541         | Trueperales               | 3     | 0.0125         |
| Rhodospirillales          | 29    | 0.1208         | Verrucomicrobiales        | 3     | 0.0125         |
| Rhodothermales            | 24    | 0.1            | Arenicellales             | 2     | 0.0083         |
| Clostridiales             | 23    | 0.0958         | Bdellovibionales          | 2     | 0.0083         |
| Saprosirpilales           | 23    | 0.0958         | Chromatiales              | 2     | 0.0083         |
| Myxococcales              | 20    | 0.0833         | Kallotenuales             | 2     | 0.0083         |
| Bacteroidales             | 19    | 0.0792         | Kiritimatiellales         | 2     | 0.0083         |
| Acidimicrobiales          | 17    | 0.0708         | Rickettsiales             | 2     | 0.0083         |
| Lactobacillales           | 15    | 0.0625         | DQ129389_o                | 2     | 0.0083         |
| Deinococcales             | 14    | 0.0583         | Desulfobulbacaeae_o       | 2     | 0.0083         |
| Pleurocapsules            | 10    | 0.0417         | GU568020_o                | 2     | 0.0083         |
| Xanthomonadales           | 10    | 0.0417         | PAC000393_o               | 2     | 0.0083         |
| Micromonosporales         | 9     | 0.0375         | Saccharimonas_o           | 2     | 0.0083         |
| Egibacteriales            | 7     | 0.0292         | Chitinispirillales        | 1     | 0.0042         |
| Nitriliruptorales         | 7     | 0.0292         | Sphingobacteriales        | 1     | 0.0042         |
| Bifidobacteriales         | 5     | 0.0208         | EF016806_o                | 1     | 0.0042         |
### Supplementary Table 4. Taxon Composition List of *S. maritima* - Family

| Taxon name | Count | Proportion (%) | Taxon name | Count | Proportion (%) |
|------------|-------|----------------|------------|-------|----------------|
| Halomonadaceae | 11945 | 49.7625 | Phyllobacteriaceae | 11 | 0.0458 |
| Pseudomonadaceae | 3620 | 15.0808 | Enterobacteriaceae | 10 | 0.0417 |
| Kineosporiaceae | 2023 | 8.4278 | Micrococaceae | 10 | 0.0417 |
| Microbacteriaceae | 1357 | 5.6532 | Xanthomonadaceae | 10 | 0.0417 |
| Oxaibacteraceae | 1104 | 4.5992 | Chroococcidiopsis_f | 10 | 0.0417 |
| Sphingomonadaceae | 904 | 3.766 | Lactobacillaceae | 9 | 0.0375 |
| Oceanospirillaceae | 302 | 1.2581 | Micromonosporaceae | 9 | 0.0375 |
| Pseudomonadaceae | 3620 | 15.0808 | Reichenbachiella_f | 8 | 0.0333 |
| Microbacteriaceae | 1357 | 5.6532 | Brevibacteriaceae | 8 | 0.0333 |
| Kineosporiaceae | 2023 | 8.4278 | Saccharospirillaceae | 8 | 0.0333 |
| Microbacteriaceae | 1357 | 5.6532 | Xanthomonadaceae | 8 | 0.0333 |
| Oxalobacteraceae | 1104 | 4.5992 | Acetobacteraceae | 7 | 0.0292 |
| Flavobacteriaceae | 177 | 0.7374 | Egibacteriaceae | 7 | 0.0292 |
| Rhodobacteraceae | 177 | 0.7374 | Marinobacter_f | 7 | 0.0292 |
| Rhodobacteraceae | 177 | 0.7374 | Idiomarinaceae | 7 | 0.0292 |
| Rhodobacteraceae | 177 | 0.7374 | Marinobacter_f | 7 | 0.0292 |
| Rhodobacteraceae | 177 | 0.7374 | Nitriliruptoraceae | 7 | 0.0292 |
| Erythrobacteraceae | 165 | 0.6874 | Planctomycetaceae | 6 | 0.025 |
| Vibrionaceae | 159 | 0.6624 | Carnobacteriaceae | 6 | 0.025 |
| Pseudoalteromonadaceae | 151 | 0.6291 | Cytophagaceae | 6 | 0.025 |
| Geodermatophilaceae | 144 | 0.5999 | Planctomycetaceae | 5 | 0.0208 |
| Symploca_f | 98 | 0.4083 | Planctomycetaceae | 5 | 0.0208 |
| Nocardiaceae | 95 | 0.3958 | Planctomycetaceae | 5 | 0.0208 |
| Planococcaceae | 83 | 0.3458 | Planctomycetaceae | 5 | 0.0208 |
| Methylobacteriaceae | 81 | 0.3374 | Planctomycetaceae | 5 | 0.0208 |
| Erwiniaceae | 66 | 0.275 | Planctomycetaceae | 5 | 0.0208 |
| Devisia_f | 49 | 0.2041 | Planctomycetaceae | 5 | 0.0208 |
| Rivulariaceae | 43 | 0.1791 | Planctomycetaceae | 5 | 0.0208 |
| Alteromonadaceae | 37 | 0.1541 | Planctomycetaceae | 5 | 0.0208 |
| Nocardia_f | 37 | 0.1541 | Planctomycetaceae | 5 | 0.0208 |
| Planococcaceae | 3620 | 15.0808 | Planctomycetaceae | 5 | 0.0208 |
| Planococcaceae | 3620 | 15.0808 | Planctomycetaceae | 5 | 0.0208 |
| Prochlorotrichaceae | 32 | 0.1333 | Planctomycetaceae | 5 | 0.0208 |
| Catalimonadaceae | 31 | 0.1291 | Planctomycetaceae | 5 | 0.0208 |
| CP003591_f | 25 | 0.1041 | Planctomycetaceae | 5 | 0.0208 |
| Rhizobiales | 49 | 0.2041 | Planctomycetaceae | 5 | 0.0208 |
| Bacillaceae | 23 | 0.0958 | Planctomycetaceae | 5 | 0.0208 |
| Rhodospirillaceae | 22 | 0.0917 | Planctomycetaceae | 5 | 0.0208 |
| Rubricoccaceae | 22 | 0.0917 | Planctomycetaceae | 5 | 0.0208 |
| Lewinellaceae | 21 | 0.0875 | Planctomycetaceae | 5 | 0.0208 |
| Lachnospiraceae | 17 | 0.0708 | Planctomycetaceae | 5 | 0.0208 |
| Bacteroidaceae | 16 | 0.0667 | Planctomycetaceae | 5 | 0.0208 |
| Acidimicrobiaceae | 14 | 0.0583 | Planctomycetaceae | 5 | 0.0208 |
| Deinococcaceae | 14 | 0.0583 | Planctomycetaceae | 5 | 0.0208 |
| Promicromonosporaceae | 14 | 0.0583 | Planctomycetaceae | 5 | 0.0208 |
| PAC000695_f | 12 | 0.05 | Planctomycetaceae | 5 | 0.0208 |
|   | Family                | Read Count | Average Depth | Genus         | Read Count | Average Depth |
|---|-----------------------|------------|---------------|---------------|------------|---------------|
| 81| Thermoanaerobaculum   | 4          | 0.0167        | Nostocaceae   | 2          | 0.0083        |
| 82| Bacteria_uc           | 3          | 0.0125        | Sandaracinaceae | 2          | 0.0083        |
| 83| Caldilineaceae        | 3          | 0.0125        | Saprospiraceae | 2          | 0.0083        |
| 84| Chthoniobacteraceae   | 3          | 0.0125        | CU925466_f    | 2          | 0.0083        |
| 85| Clostridiaceae        | 3          | 0.0125        | DQ129389_f    | 2          | 0.0083        |
| 86| Cryomorphaceae        | 3          | 0.0125        | GU568020_f    | 2          | 0.0083        |
| 87| Erysipelotrichaceae   | 3          | 0.0125        | LRDG_f        | 2          | 0.0083        |
| 88| Halanaerobiaceae      | 3          | 0.0125        | PAC000016_f   | 2          | 0.0083        |
| 89| Hyphomicrobiaceae     | 3          | 0.0125        | PAC0000616_f  | 2          | 0.0083        |
| 90| Oligoflexaceae        | 3          | 0.0125        | Bradyrhizobiaceae | 1      | 0.0042        |
| 91| Polyaangiaceae        | 3          | 0.0125        | Chitinispillaceae | 1      | 0.0042        |
| 92| Porphyromonadaceae    | 3          | 0.0125        | Chitinophagaceae | 1      | 0.0042        |
| 93| Pseudanaebenaceae     | 3          | 0.0125        | Ectothiorhodospiraceae | 1 | 0.0042        |
| 94| Trueperaceae          | 3          | 0.0125        | Exiguobacteriaceae | 1      | 0.0042        |
| 95| Ilumatobacter_f       | 3          | 0.0125        | Kangiellaceae  | 1          | 0.0042        |
| 96| Luteolibacter_f       | 3          | 0.0125        | Nannocystaceae | 1          | 0.0042        |
| 97| Anaplasmataceae       | 2          | 0.0083        | Peptostreptococcaceae | 1      | 0.0042        |
| 98| Archangiacae          | 2          | 0.0083        | Ruminococcaceae | 1          | 0.0042        |
| 99| Arenicellaceae        | 2          | 0.0083        | Woeseiaceae    | 1          | 0.0042        |
|100| Cellvibrionaceae      | 2          | 0.0083        | AY913398_f    | 1          | 0.0042        |
|101| Chelatococcaceae      | 2          | 0.0083        | EF016806_f    | 1          | 0.0042        |
|102| Desulfobulbaceae      | 2          | 0.0083        | Mogibacterium_f | 1      | 0.0042        |
|103| Kallotenuaceae        | 2          | 0.0083        | Pseudohongiella_f | 1      | 0.0042        |
|104| Kirimatietiellaceae   | 2          | 0.0083        | Saprospiraceae | 2          | 0.0083        |
|105| Mooreiaceae           | 2          | 0.0083        |               |            |               |