附表1 腾冲热泉样品的主量元素测试结果（单位：mg/L）

Table S1 Concentrations (in mg/L) of major elements in the hot spring samples collected from Tengchong

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 编号 | HCO3- | CO32- | F- | Cl- | Br- | NO2- | NO3- | SO42- | Na | Mg | K | Ca | Si |
| HMZ | 244.06 | 42.83 | 8.32 | 335.45 | 0.67 | 2.95 | 1.29 | 33.13 | 381.30 | 0.08 | 55.84 | 2.01 | 107.25 |
| HMZ-D1 | 455.79 | 34.51 | 7.57 | 341.94 | 0.00 | 2.88 | 1.28 | 30.46 | 350.76 | 0.03 | 52.29 | 1.31 | 100.88 |
| HMZ-D2 | 509.90 | 42.03 | 7.90 | 351.19 | 0.00 | 2.96 | 1.29 | 33.26 | 357.88 | 0.03 | 52.82 | 1.26 | 99.54 |
| HMZ-D3 | 531.98 | 41.98 | 8.12 | 357.42 | 0.00 | 2.92 | 1.28 | 32.82 | 362.95 | 0.06 | 54.36 | 2.00 | 99.29 |
| LP01 | 1190.72 | 30.04 | 8.76 | 315.69 | 0.00 | 2.70 | 4.91 | 20.25 | 569.15 | 2.66 | 43.59 | 12.46 | 83.53 |
| LP01-D1 | 1080.31 | 55.55 | 8.79 | 315.16 | 0.00 | 2.70 | 4.90 | 21.62 | 548.01 | 3.89 | 43.19 | 13.83 | 82.97 |
| LP01-D2 | 1249.28 | 35.09 | 8.55 | 313.99 | 0.00 | 2.72 | 4.93 | 22.56 | 548.89 | 4.09 | 42.67 | 17.65 | 81.44 |
| LP01-D3 | 1405.44 | 31.03 | 8.98 | 327.47 | 0.00 | 2.73 | 5.16 | 22.81 | 585.62 | 3.31 | 44.48 | 17.18 | 83.49 |
| LP01-D4 | 1461.56 | 35.82 | 9.31 | 340.97 | 0.00 | 2.75 | 5.11 | 25.52 | 603.71 | 3.64 | 45.04 | 13.37 | 83.13 |
| LP01-D5 | 1403.61 | 43.78 | 9.10 | 329.67 | 0.00 | 2.73 | 4.95 | 24.72 | 558.59 | 2.91 | 43.74 | 10.18 | 78.91 |
| QQ | 410.35 | 0.49 | 3.12 | 344.15 | 0.83 | 2.95 | 0.00 | 68.53 | 278.38 | 11.30 | 47.99 | 17.62 | 132.30 |
| QQ-D1 | 385.70 | 1.36 | 4.07 | 340.42 | 0.60 | 2.83 | 0.00 | 68.06 | 285.92 | 11.32 | 49.19 | 18.05 | 131.46 |
| QQ-D2 | 383.02 | 4.85 | 4.31 | 348.41 | 0.00 | 2.87 | 0.00 | 69.90 | 288.89 | 11.40 | 50.04 | 17.88 | 128.30 |
| QQ-D3 | 377.35 | 7.24 | 4.66 | 347.97 | 0.57 | 2.87 | 1.48 | 69.78 | 283.19 | 11.44 | 49.22 | 17.48 | 128.53 |

附表2 腾冲热泉样品属水平主要微生物的相对丰度

Table S2 Genus-level distribution of major microbes in the hot spring samples collected from Tengchong

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 属水平物种 | HMZ | HMZ-D1 | HMZ-D2 | HMZ-D3 | LP01 | LP01-D1 | LP01-D2 | LP01-D3 | LP01-D4 | LP01-D5 | QQ | QQ-D1 | QQ-D2 | QQ-D3 |
| *Candidatus\_*Nitrosocaldus | 8.2E-05 | 1.0E-04 | 8.6E-04 | 8.5E-03 | 9.2E-04 | 9.5E-03 | 1.5E-02 | 6.9E-02 | 1.9E-02 | 1.4E-02 | 2.1E-01 | 1.8E-01 | 4.0E-02 | 6.1E-02 |
| *Thermus* | 1.9E-03 | 8.8E-02 | 2.1E-01 | 4.6E-02 | 6.2E-03 | 2.9E-04 | 2.5E-04 | 2.3E-04 | 2.1E-04 | 1.5E-03 | 6.9E-03 | 1.1E-02 | 7.7E-04 | 7.5E-04 |
| *Hydrogenobacter* | 1.4E-04 | 4.0E-02 | 1.1E-01 | 3.7E-02 | 1.1E-02 | 7.5E-03 | 6.6E-04 | 1.5E-04 | 4.0E-04 | 4.1E-02 | 3.0E-02 | 1.8E-03 | 5.7E-04 | 6.7E-04 |
| *Chloroflexus* | 4.7E-04 | 3.9E-04 | 3.6E-02 | 6.1E-02 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 3.5E-02 | 1.5E-02 | 1.1E-01 | 8.2E-02 |
| *Meiothermus* | 7.8E-02 | 2.8E-04 | 7.1E-04 | 7.8E-04 | 0.0E+00 | 7.4E-05 | 6.5E-05 | 4.8E-05 | 3.2E-05 | 2.1E-04 | 7.4E-03 | 3.2E-02 | 9.0E-02 | 5.2E-02 |
| *Caldimicrobium* | 4.1E-04 | 6.9E-02 | 2.2E-03 | 7.7E-04 | 3.0E-05 | 3.4E-04 | 1.8E-04 | 1.4E-04 | 9.9E-05 | 3.1E-04 | 4.3E-04 | 2.6E-04 | 3.1E-04 | 2.7E-04 |
| *Candidatus\_*Caldiarchaeum | 0.0E+00 | 1.1E-03 | 1.3E-03 | 8.2E-05 | 7.1E-04 | 3.4E-02 | 8.4E-03 | 9.2E-03 | 2.1E-02 | 5.1E-02 | 2.8E-02 | 2.8E-03 | 2.3E-04 | 2.5E-04 |
| *Fervidobacterium* | 1.6E-04 | 2.0E-02 | 4.7E-02 | 4.1E-03 | 1.5E-05 | 6.7E-04 | 2.0E-04 | 3.8E-05 | 5.9E-04 | 4.4E-04 | 5.1E-04 | 1.8E-03 | 1.6E-04 | 8.6E-05 |
| *Ignavibacterium* | 9.0E-05 | 0.0E+00 | 3.7E-04 | 1.5E-04 | 2.1E-04 | 4.0E-03 | 2.1E-02 | 4.3E-02 | 3.5E-02 | 6.6E-04 | 2.1E-04 | 6.9E-04 | 2.2E-03 | 1.9E-03 |
| *Ralstonia* | 5.7E-04 | 8.7E-04 | 3.7E-04 | 3.4E-04 | 2.1E-03 | 4.1E-04 | 3.9E-04 | 5.2E-04 | 3.5E-04 | 6.0E-04 | 1.8E-03 | 3.3E-02 | 5.0E-03 | 5.2E-03 |
| *Thermodesulfovibrio* | 7.9E-04 | 7.9E-05 | 1.2E-03 | 2.2E-02 | 1.4E-04 | 1.0E-02 | 2.4E-02 | 1.5E-02 | 2.2E-02 | 1.1E-03 | 0.0E+00 | 0.0E+00 | 4.8E-05 | 0.0E+00 |
| *Ignisphaera* | 7.3E-06 | 1.5E-04 | 5.9E-06 | 8.2E-06 | 2.2E-02 | 1.6E-04 | 1.5E-04 | 9.7E-05 | 2.0E-04 | 2.6E-04 | 2.6E-04 | 2.0E-04 | 5.3E-05 | 3.0E-05 |
| *Gemmata* | 0.0E+00 | 0.0E+00 | 2.7E-05 | 3.6E-04 | 1.0E-04 | 7.5E-05 | 1.9E-05 | 1.2E-04 | 2.9E-05 | 2.9E-04 | 1.1E-02 | 2.0E-02 | 4.9E-03 | 3.6E-03 |
| Others | 9.2E-01 | 7.8E-01 | 5.8E-01 | 8.2E-01 | 9.6E-01 | 9.3E-01 | 9.3E-01 | 8.6E-01 | 9.0E-01 | 8.9E-01 | 6.7E-01 | 7.0E-01 | 7.4E-01 | 7.9E-01 |