**Figure S1.** Geographical position of the Xiaozhou Island in Hainan Province (The arrow shows position of Xiaozhou Island).

**Figure S2.** Phylogenetic tree base on sequences of OTUs.

**Table S1.** Percentage of bacteria abundance and diversity on family and genus level

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Family | Genus | Cg(Control) | Cg(cooling) | Ig(Control) | Ig(cooling) |
| Spiroplasmataceae | *Spiroplasma* | 36.24 | 0.14 | 54.73 | 55.80 |
| Marinilabiaceae | *Marinifilum* | 0 | 24.15 | 0.008 | 0.05 |
| *Carboxylicivirga* | 0 | 7.39 | 0.008 | 0.17 |
| Bacteroidales\_S24-7\_group | norank\_f\_\_Bacteroidales\_S24-7\_group | 1.61 | 0.02 | 0.54 | 0.12 |
| Bacteroidaceae | *Bacteroides* | 1.05 | 0.03 | 0.66 | 0.20 |
| Flavobacteriaceae | unclassified\_f\_\_Flavobacteriaceae | 0 | 3.05 | 0.28 | 0.13 |
| unclassified\_p\_\_Bacteroidetes | unclassified\_p\_\_Bacteroidetes | 0 | 1.10 | 0.26 | 0.02 |
| Enterococcaceae | *Enterococcus* | 11.47 | 0.003 | 0.01 | 0.04 |
| Lactobacillaceae | *Lactobacillus* | 1.48 | 0.05 | 0.72 | 1.01 |
| Streptococcaceae | *Streptococcus* | 1.56 | 0 | 0.12 | 0.03 |
| Family\_XII\_o\_\_Clostridiales | *Fusibacter* | 0 | 3.41 | 0 | 0.36 |
| Peptostreptococcaceae | unclassified\_f\_\_Peptostreptococcaceae | 1.18 | 0.05 | 0.83 | 0.63 |
| Kazan-2B-17 | norank\_f\_\_Kazan-2B-17 | 0 | 3.11 | 0 | 0 |
| Rhodobacteraceae | *Marivita* | 0.02 | 0.39 | 0.36 | 7.06 |
| *Donghicola* | 0.03 | 9.77 | 0.19 | 0.07 |
| *Ruegeria* | 0.05 | 4.20 | 1.55 | 1.09 |
| norank\_f\_\_Rhodobacteraceae | 0 | 4.44 | 0 | 0.09 |
| *Rhodovulum* | 0 | 3.27 | 0 | 0 |
| unclassified\_f\_\_Rhodobacteraceae | 0.06 | 1.12 | 1.22 | 0.34 |
| *Leisingera* | 0.02 | 1.14 | 0.80 | 0.33 |
| *Dinoroseobacter* | 0.02 | 0.31 | 1.40 | 0.41 |
| Phyllobacteriaceae | *Cohaesibacter* | 0.00 | 7.90 | 1.77 | 0.06 |
| Halomonadaceae | *Halomonas* | 1.42 | 0.06 | 4.93 | 4.19 |
| unclassified\_f\_\_Halomonadaceae | 0.28 | 0.01 | 1.14 | 1.10 |
| Vibrionaceae | *Vibrio* | 0 | 7.51 | 0.36 | 0.07 |
| Ferrimonadaceae | *Ferrimonas* | 0 | 3.50 | 0 | 0 |
| Thiotrichales\_Incertae\_Sedis | *Caedibacter* | 0.02 | 0 | 0.26 | 1.52 |
| Idiomarinaceae | *Aliidiomarina* | 0.22 | 0.02 | 1.03 | 0.92 |
| Pasteurellaceae | *Haemophilus* | 1.21 | 0 | 0 | 0.02 |
| Pseudomonadaceae | *Pseudomonas* | 1.17 | 0.008 | 0.27 | 0.27 |
| norank\_c\_\_Cyanobacteria | norank\_c\_\_Cyanobacteria | 5.62 | 0.04 | 0.18 | 0.37 |
| Dietziaceae | *Dietzia* | 0.50 | 0.05 | 1.86 | 2.68 |
| Spirochaetaceae | *Spirochaeta*\_2 | 2.16 | 0.01 | 1.45 | 0.39 |
| unclassified\_f\_\_Spirochaetaceae | 0.09 | 0.001 | 0.20 | 1.37 |