

Supplementary Materials: Insights into the Seasonal Olfactory Mechanism of Geosmin in Raw Water of Huangpu River

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Table S1. Basic information of sampling date and water quality parameters.

| Sample No. | Date | Temperature | | Weather | Wind | Turbidity (NTU) | DO | COD | NH ₃ | TP | Geosmin |
|------------|-------------------------|-------------|------|---------------------------|--------------------------|-----------------|--------|------|-----------------|------|---------|
| | | High | Low | | | | (mg/L) | | | | (ng/L) |
| 1 | 2016-03-21 Monday | 15°C | 10°C | Cloudy~ Overcast | East wind 1-2 class | 18 | 6.42 | 3.98 | 1.52 | 0.09 | 6.48 |
| 2 | 2016-04-01 Friday | 22°C | 13°C | Sunny~ Cloudy | Southwest wind 1-2 class | 21 | 6.58 | 4.65 | 1.64 | 0.08 | 8.87 |
| 3 | 2016-04-14 Thursday | 25°C | 15°C | Cloudy | Southwest wind 1-2 class | 20 | 6.31 | 4.47 | 1.87 | 0.08 | 4.60 |
| 4 | 2016-04-26 Tuesday | 19°C | 15°C | Little ~ Moderate rain | East wind 1-2 class | 35 | 6.35 | 4.51 | 1.85 | 0.07 | <0.20 |
| 5 | 2016-05-12 Thursday | 28°C | 19°C | Sunny | Southwest wind 1-2 class | 27 | 5.81 | 4.16 | 1.61 | 0.07 | 11.14 |
| 6 | 2016-05-26 Thursday | 26°C | 20°C | Moderate rain | North wind 1-2 class | 47 | 4.57 | 3.82 | 1.19 | 0.06 | 11.50 |
| 7 | 2016-06-01 Wednesday | 21°C | 18°C | Moderate rain | Northeast wind 4-5 class | 42 | 4.98 | 3.66 | 1.1 | 0.06 | <0.20 |
| 8 | 2016-06-13 Monday | 28°C | 21°C | Cloudy | Northeast wind 1-2 class | 28 | 4.76 | 4.18 | 1.36 | 0.07 | 5.82 |
| 9 | 2016-06-29 Wednesday | 27°C | 23°C | Shower | South wind 1-2 class | 32 | 4.53 | 4.57 | 1.58 | 0.07 | 3.22 |
| 10 | 2016-07-08 Friday | 31°C | 26°C | Shower | East wind 1-2 class | 31 | 4.63 | 5.29 | 1.34 | 0.06 | 4.78 |
| 11 | 2016-07-21 Thursday | 38°C | 30°C | Sunny | Southwest wind 1-2 class | 24 | 4.31 | 5.07 | 1.34 | 0.06 | 6.03 |
| 12 | 2016-07-29 Friday | 38°C | 29°C | Thunder shower~ Cloudy | South wind 1-2 class | 25 | 4.57 | 5.31 | 1.46 | 0.06 | 7.57 |
| 13 | 2016-08-12 Friday | 34°C | 28°C | Cloudy | Southeast wind 1-2 class | 27 | 4.24 | 5.22 | 1.32 | 0.08 | 5.72 |
| 14 | 2016-08-19 Friday | 36°C | 29°C | Sunny | Southeast wind 1-2 class | 22 | 4.19 | 5.58 | 1.29 | 0.08 | 6.23 |
| 15 | 2016-09-02 Friday | 35°C | 26°C | Cloudy | West wind 1-2 class | 26 | 4.26 | 5.54 | 1.4 | 0.06 | 5.5 |
| 16 | 2016-09-09 Friday | 31°C | 24°C | Cloudy~ Overcast | Northeast wind 1-2 class | 28 | 4.63 | 5.26 | 1.28 | 0.06 | 4.88 |
| 17 | 2016-09-26 Monday | 30°C | 24°C | Rain showers | East wind 1-2 class | 32 | 4.77 | 5.14 | 0.98 | 0.06 | 4.21 |
| 18 | 2016-10-10 Monday | 22°C | 18°C | Cloudy~ Overcast | Northeast wind 1-2 class | 26 | 5.34 | 4.32 | 0.69 | 0.07 | <0.20 |
| 19 | 2016-10-24 Monday | 23°C | 20°C | Overcast | Southeast wind 1-2 class | 27 | 5.59 | 4.27 | 0.76 | 0.07 | <0.20 |

| | | | | | | | | | | | |
|----|----------------------|-------|-------|------------------------------|-----------------------------|----|------|------|------|------|-------|
| 20 | 2016-11-07 Monday | 23 °C | 14 °C | Little ~ Moderate rain | Southeast wind 1-2 class | 38 | 5.73 | 4.15 | 0.83 | 0.08 | <0.20 |
| 21 | 2016-11-29 | 13 °C | 10 °C | Overcast Little rain | Southeast wind 1-2 class | 35 | 5.51 | 4.92 | 1.32 | 0.09 | 20.34 |
| 22 | 2016-12-05 Monday | 18 °C | 9 °C | Cloudy~ Overcast | Southwest wind 1-2 class | 34 | 5.86 | 5.74 | 1.99 | 0.11 | 20.86 |
| 23 | 2016-12-12 Monday | 16 °C | 11 °C | Cloudy~ Little rain | Southwest wind 1-2 class | 33 | 6.56 | 6.28 | 2.54 | 0.13 | 19.46 |
| 24 | 2016-12-19 Monday | 18 °C | 13 °C | Cloudy~ Little rain | East wind 1-2 class | 31 | 6.29 | 6.53 | 2.29 | 0.12 | 12.71 |

Rows marked with blue color are used to represent summer samples, while rows marked with gray color represented the winter samples.

Table S2. Samples used for microbial community analysis and the sequencing data.

| Sequencing No. | Sampling date & Type | Nucleic acid (ng/ μ L) | Absorbance 260/280 | Sequences | Coverage | Chao index | Shannon index |
|----------------|----------------------|----------------------------|--------------------|-----------|----------|------------|---------------|
| 11# | 2016-07-21 Sludge | 53.3 | 1.79 | 43813 | 0.97 | 5266.736 | 6.601554 |
| 12# | 2016-08-12 Sludge | 78.1 | 1.78 | 34084 | 0.97 | 4551.797 | 6.423157 |
| 13# | 2016-09-02 Sludge | 82.5 | 1.85 | 46676 | 0.97 | 5033.161 | 6.385886 |
| 14# | 2016-09-09 Sludge | 86.6 | 1.80 | 39470 | 0.96 | 5495.265 | 6.481221 |
| 15# | 2016-09-26 Sludge | 108.5 | 1.79 | 38934 | 0.96 | 5222.335 | 6.331765 |
| 16# | 2016-07-21 Sludge | 48.6 | 1.91 | 48942 | 0.97 | 5098.838 | 6.581536 |
| 17# | 2016-08-12 Sludge | 94.9 | 1.85 | 44160 | 0.97 | 4864.628 | 6.32521 |
| 18# | 2016-09-02 Sludge | 70.6 | 1.79 | 48445 | 0.97 | 5679.119 | 6.656059 |
| 19# | 2016-09-09 Sludge | 183.5 | 1.80 | 40688 | 0.96 | 5992.327 | 6.498348 |
| 20# | 2016-09-26 Sludge | 39.4 | 1.80 | 33880 | 0.97 | 4292.571 | 6.360061 |
| 21# | 2016-07-21 Water | 54.3 | 1.76 | 52374 | 0.98 | 4896.708 | 6.457025 |
| 22# | 2016-08-12 Water | 48.1 | 1.76 | 43663 | 0.97 | 5128.583 | 6.212478 |
| 23# | 2016-09-02 Water | 88.2 | 1.85 | 50173 | 0.97 | 5433.633 | 6.36689 |
| 24# | 2016-09-09 Water | 36.9 | 1.83 | 60663 | 0.98 | 5468.484 | 6.431954 |
| 25# | 2016-09-26 Water | 84 | 1.83 | 47523 | 0.97 | 5353.144 | 6.231605 |
| 26# | 2016-12-12 Sludge | 32.5 | 1.86 | 53076 | 0.99 | 2148.800 | 4.280681 |
| 27# | 2016-12-19 Sludge | 18.1 | 1.95 | 47960 | 0.98 | 3706.402 | 5.606855 |
| 28# | 2016-12-12 Water | 23.1 | 1.89 | 61724 | 0.99 | 2750.442 | 4.487307 |
| 29# | 2016-12-19 Water | 31.7 | 1.86 | 49745 | 0.99 | 2443.396 | 4.571827 |

Rows marked with blue color are used to represent summer samples, while rows marked with gray color represented the winter samples.

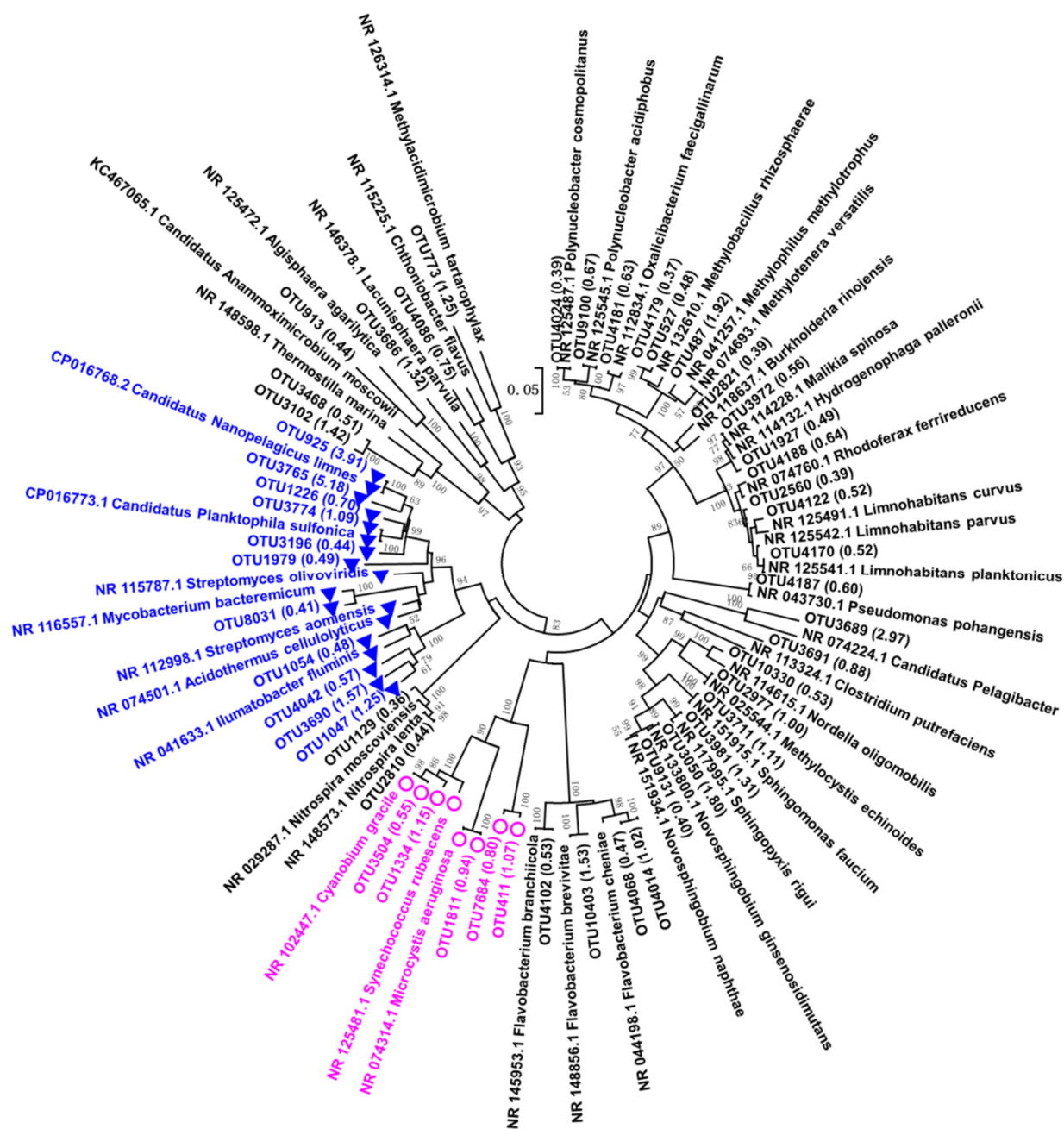


Figure S1. Phylogenetic tree of top 50 OTUs and the reference sequences (Blue, Actinobacteria; Pink, Cyanobacteria).