

Supplementary Material

Table S1. Sampling days and AQI value selected under non-serious pollution levels.

Spring	Mean value of microbial activity (ng m ⁻³)	AQI
2018/3/10	0.846264	176
2018/3/11	0.780531	49
2018/3/12	0.270401	144
2018/3/15	0.521364	28
2018/3/16	0.87972	61
2018/3/17	0.136601	63
2018/3/18	0.276381	144
2018/3/20	0.838394	13
2018/3/21	0.307448	62
2018/3/22	0.231625	116
2018/3/23	0.1671	138
2018/3/24	0.188445	69
2018/3/25	0.14838	61
2018/3/26	0.37565	132
2018/3/29	0.023781	141
2018/3/30	0.067916	58
2018/3/31	0.344638	80
2018/4/1	0.199329	157
Summer	Mean value of microbial activity (ng m ⁻³)	AQI
2017/6/21	0.203184	74
2017/6/26	1.698929	57
2017/6/27	0.830221	82
2017/7/9	1.343472	53
2017/7/10	1.518069	52
2017/7/11	0.928712	42
2017/7/12	0.322527	136
2017/7/13	0.856737	95
2017/7/14	0.314398	48

2017/7/16	0.601238	61
2017/7/17	0.212132	60
2017/7/18	0.119088	94
2017/7/19	0.133347	139
Autumn	Mean value of microbial activity (ng m ⁻³)	AQI
2017/9/23	2.325264	77
2017/9/24	0.451558	96
2017/9/25	0.995216	100
2017/9/26	2.700654	86
2017/9/27	0.717182	30
2017/9/28	0.657815	17
2017/9/29	0.879255	53
2017/9/30	1.928232	65
2017/10/11	1.977341	25
2017/10/12	1.883769	15
2017/10/13	0.942117	34
2017/10/14	0.798039	28
2017/10/15	1.313644	40
2017/10/16	0.980168	28
2017/10/17	2.023468	67
2017/10/19	0.091789	29
2017/10/20	0.091223	80
2017/10/21	0.527056	74
2017/10/22	1.743607	54
2017/10/24	0.109141	41
2017/10/25	0.744888	92
2017/10/26	0.664164	95
2017/10/27	0.63671	190
2017/11/3	0.278321	32
2017/11/4	0.509378	28
2017/11/5	0.69581	85
2017/11/6	0.240723	178
2017/11/8	0.633629	35
2017/11/10	2.191422	19
2017/11/11	0.703881	25
2017/11/12	3.827992	54
2017/11/13	2.826492	73
2017/11/14	2.294804	17
2017/11/15	0.520494	30
2017/11/16	0.544021	40
2017/11/17	1.313992	25

2017/11/18	0.917844	32
2017/11/23	0.362524	26
2017/11/24	0.870936	28
2017/11/25	0.242106	66
2017/11/26	1.292232	23
2017/11/27	0.418258	47
2017/11/28	1.04411	108
2017/11/29	1.811696	36
2017/11/30	1.322897	34
Winter	Mean value of microbial activity (ng m ⁻³)	AQI
2017/12/1	0.307202	47
2017/12/3	0.651089	82
2017/12/4	0.305924	18
2017/12/5	0.153004	34
2017/12/6	0.419752	45
2017/12/7	0.950002	38
2017/12/8	1.705386	30
2017/12/9	1.473912	27
2017/12/10	1.08516	30
2017/12/11	1.281944	24
2017/12/12	0.408452	19
2017/12/13	0.786537	42
2017/12/15	0.202646	105
2017/12/19	0.267034	21
2017/12/20	0.424705	55
2017/12/21	0.764891	29
2017/12/22	0.835801	82
2017/12/23	0.164598	27
2017/12/24	1.988321	30
2017/12/25	1.328876	18
2017/12/26	3.041942	37
2017/12/27	0.80689	62
2017/12/28	2.329291	104
2017/12/29	0.101773	134

Table S2. Number of sequences of pathogenic bacteria in different seasons under two levels, respectively.

Taxon (bacteria)	spr_pl1	spr_pl2	sum_pl1	sum_pl2	aut_pl1	aut_pl2	win_pl1	win_pl2
<i>Brucella</i>	9	6	0	49	36	24	30	69
<i>Rickettsia</i>	0	0	0	0	3	2	8	1
<i>Erysipelothrix</i>	0	2	0	0	10	3	9	26
<i>Prevotella</i>	5	4	0	0	77	104	24	58
<i>Shigella</i>	1	2	0	0	103	42	19	18
<i>Streptococcus</i>	20	13	6	40	113	130	163	158
SUM	35	27	6	89	342	305	253	330
Total squences	29350	41132	31011	40222	31370	34375	38885	35111