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Analysis of culturable airborne fungi in outdoor environments in Tianjin, China

Yumna Nageen¹, Michael Dare Asemoloye¹, Sergei Pölme², Xiao Wang¹, Shihan Xu¹, Pramod W. Ramteke³ and Lorenzo Pecoraro^{1*}

Abstract

Background: Fungal spores dispersed in the atmosphere may become cause of different pathological conditions and allergies for human beings. A number of studies have been performed to analyze the diversity of airborne fungi in different environments worldwide, and in particular in many urban areas in China. We investigated, for the first time, the diversity, concentration and distribution of airborne fungi in Tianjin city. We sampled 8 outdoor environments, using open plate method, during a whole winter season. Isolated fungi were identified by morphological and molecular analysis. Environmental factors which could influence the airborne fungi concentration (temperature, humidity, wind speed, and air pressure) were monitored and analyzed. The effect of different urban site functions (busy areas with high traffic flow and commercial activities vs. green areas) on airborne fungal diversity was also analyzed.

Results: A total of 560 fungal strains, belonging to 110 species and 49 genera of Ascomycota (80 %), Basidiomycota (18 %), and Mucoromycota (2 %) were isolated in this study. The dominant fungal genus was *Alternaria* (22 %), followed by *Cladosporium* (18.4 %), *Naganishia* (14.1 %), *Fusarium* (5.9 %), *Phoma* (4.11 %), and *Didymella* (4.8 %). A fungal concentration ranging from 0 to 3224.13 CFU m⁻³ was recorded during the whole study. Permutational multivariate analysis showed that the month was the most influential factor for airborne fungal community structure, probably because it can be regarded as a proxy of environmental variables, followed by wind speed. The two analyzed environments (busy vs. green) had no detectable effect on the air fungal community, which could be related to the relatively small size of parks in Tianjin and/or to the study season.

Conclusions: Our study shed light on the highly diverse community of airborne fungi characterizing the outdoor environments of Tianjin, and clarified the role that different environmental factors played in shaping the analyzed fungal community. The dominant presence of fungi with potential hazardous effect on human health, such as *Alternaria*, *Cladosporium* and *Naganishia*, deserves further attention. Our results may represent a valuable source of information for air quality monitoring, microbial pollution control, and airborne diseases prevention.

Keywords: Airborne fungi, Biodiversity, Environmental factors, Outdoor environments

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Background

Fungi are one of the most abundant, widely distributed and pervasive group of organisms on Earth [1]. These organisms are ubiquitous in nature, playing different roles in the environment as symbionts, saprotrophs or parasites, which enable them to colonize diverse habitats [2]. Fungal presence in the ecosystem reaches tremendous levels, being fungi estimated to comprise approximately 25 % of the global biomass [3, 4]. Spores of different fungal species are dispersed in the atmosphere hence, airborne fungi play a critical role in air pollution [5], which can alter biotic and/or abiotic factors of the environment, thus affecting human health [6]. The diversity and concentration of airborne fungi in a certain area depend on environmental condition, human activity and availability of substrate for fungal growth [7, 8]. Fungal invasion of human body may lead to many pathological conditions and allergies. Until now, approximately 150 allergy causing fungal *taxa* have been identified [9], while about 10 % of the world population is suspected to have fungal allergies [10–13]. The myriad health effects of fungi on humans, plants and livestock are well recognized [14], including severe diseases of human respiratory system [1, 13]. Effects of airborne fungi on human health have stimulated researchers to study the diversity of aeroallergens, which has led to the identification of nearly 80 genera of fungi mainly responsible for respiratory ailments or anomalies [10, 15–23]. Over 100 fungal species are known to cause serious animal and human infections [2, 24]. *Alternaria*, *Penicillium*, *Aspergillus* and *Cladosporium* are among the airborne fungal genera responsible for allergic rhinitis or asthma [5, 8, 10, 25, 26]. Airborne fungi are also suspected to be one of the causes of lung cancer. Aflatoxin B₁ produced by *Aspergillus flavus* was found to cause liver and lung cancer when the fungus entered the respiratory tract by ingestion or inhalation [27–31]. Some of the less severe infectious diseases caused by fungi include aspergillosis [32], hypersensitivity diseases, such as hypersensitivity pneumonitis and asthma [33, 34], and toxicosis reactions, including acute systemic toxicosis [35]. *Aspergillus fumigatus* is responsible for about 90 % of all the invasive aspergillosis, while *A. niger* causes a range of invasive pulmonary diseases [36]. Exposure to the airborne fungi was found to be associated with respiratory allergy symptoms, asthma exacerbation and asthma complication leading to respiratory failure and death [37–39]. Knowledge about the identity and relative frequencies of airborne fungi in the environment is necessary to evaluate potential health hazards [5].

Nowadays, the global research on aeroallergens is considered of primary importance by scholars and researchers, resulting in a large body of literature available on airborne fungi [6, 8, 40]. Numerous scientific studies have been conducted on outdoor microorganisms in

China and reported on national and international forums over the past several years. Airborne fungi concentrations are monitored in many Chinese cities, including Baoding [41], Beijing [26, 42–44], Hangzhou [40], Nanjing [45], Shenzhen [46], Tainan [1, 47], and Xi'an [48, 49]. These studies have increased our basic knowledge on the diversity of airborne fungi in the environment and have provided data on some important issues related to public health [40]. The study of disease-causing airborne fungi can help in the medical evaluations, assessment of health issues, development of remedies, and assist in the proactive air quality monitoring [5].

Air pollution does not only affect the human health by creating pathological conditions, allergies and other health related problems, but also has a negative influence on the socioeconomic development process to a significant level in most of the northern cities of China [44]. Tianjin is the third biggest municipality and the Northern China's leading manufacturing centre and port [50]. Currently, there are no data available on the diversity of airborne fungi comparing the different urban environments in Tianjin. Our study aimed at contributing to the knowledge of airborne fungi in Tianjin, with the assessment of the diversity of culturable strains, using the open plate sampling method in different outdoor environments. We described diversity, concentration, distribution, and relative frequency of culturable airborne fungi in eight different sampling sites in Tianjin. We also analyzed the influence of several environmental factors on the studied fungal community. Results from the present research could provide support in pollution control and environmental protection in urban environments.

Results

A total of 560 different fungal strains belonging to 110 species and 49 genera of Ascomycota (80 %), Basidiomycota (18 %), and Mucoromycota (2 %) were identified from the 8 analyzed sites in 4 urban districts in Tianjin (Fig. 1, Supplementary Table S3). Among the dominant fungal genera, approximately 22 % of the total identified strains belonged to the genus *Alternaria*, followed by *Cladosporium* 18.4 %, *Naganishia* 14.1 %, *Fusarium* 5.9 %, *Phoma* 4.11 %, and *Didymella* 4.8 % (Supplementary Table S4). The most frequently occurring fungal species were *Alternaria alternata* (13.4 %), *Cladosporium cladosporioides* (9.6 %), *Alternaria tenuissima* (7.5 %), *Naganishia albida* (6.4 %), and *N. globosa* (6.1 %), followed by *Didymella pedaeiae* (2.7 %), *Fusarium verticillioides* (2.7 %), *F. equiseti* (2.3 %), *C. tenuissimum* (2.3 %), *Valsa sordida* (2.3 %), *C. anthropophilum* (1.8 %) (Supplementary Table S5). The genus *Cladosporium* showed the highest species richness of the whole airborne fungal community, with 13 identified species, 12 %

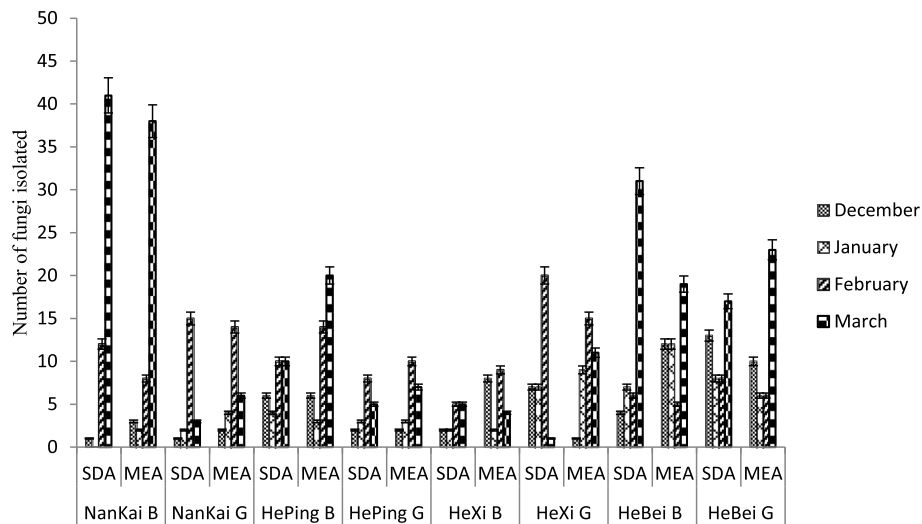


Fig. 1 Total fungal strains isolated from each location

of total recorded *taxa*. *Alternaria*, represented by 8 species (7%), was the second most species-rich genus, followed by *Naganishia* (7 species, 6%), while 6 species (5.5%) were found to represent each of the genera *Aspergillus*, *Didymella*, *Fusarium*, and *Phoma*.

The highest number of strains was recorded in March (241), followed by February (165), while January and December sampling yielded a considerably lower number of isolates, with a total of 74 and 80 strains respectively (Supplementary Table S2). Overall, 55.5 and 44.5% colonies were isolated from busy and green sites, respectively (Fig. 2). Concerning the two culture media used in this study, 47.5% colonies were isolated on SDA, whereas 52.5% fungal strains were obtained on MEA (Fig. 3).

A varying fungal concentration was observed at each location in each month as shown in Table 1. The concentration of outdoor culturable airborne fungi ranged from 0 CFU m⁻³ to 3224.13 CFU m⁻³, with an average of 625 CFU m⁻³ and 720 CFU m⁻³ recorded for SDA and MEA media, respectively.

The environmental parameters recorded in this study (Supplementary Table S1) showed different effect on the analysed fungal diversity. According to permutational multivariate analysis month had the greatest impact (Adonis: $F_{3,17} = 3.57$) to airborne fungal community structure, followed by wind speed ($F_{1,17} = 2.13$) when included simultaneously in the model (Table 2). Wind, humidity, and temperature had a similar effect when tested

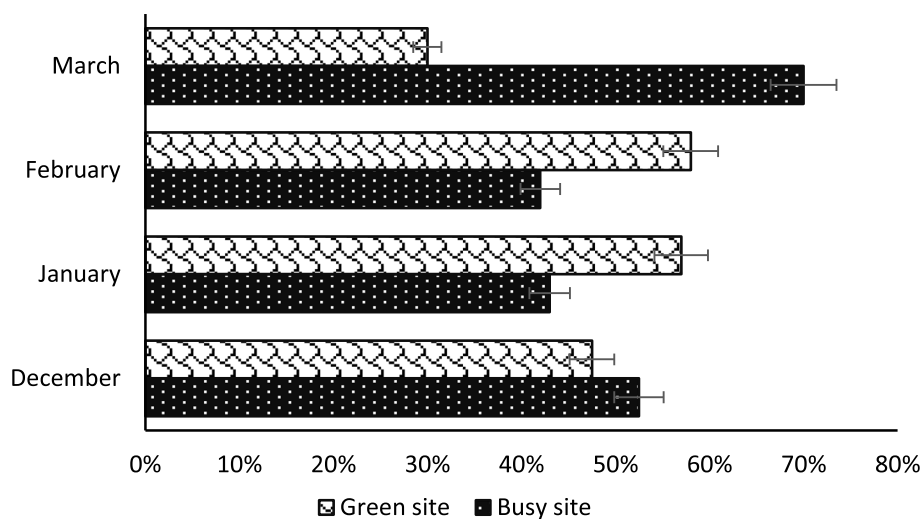
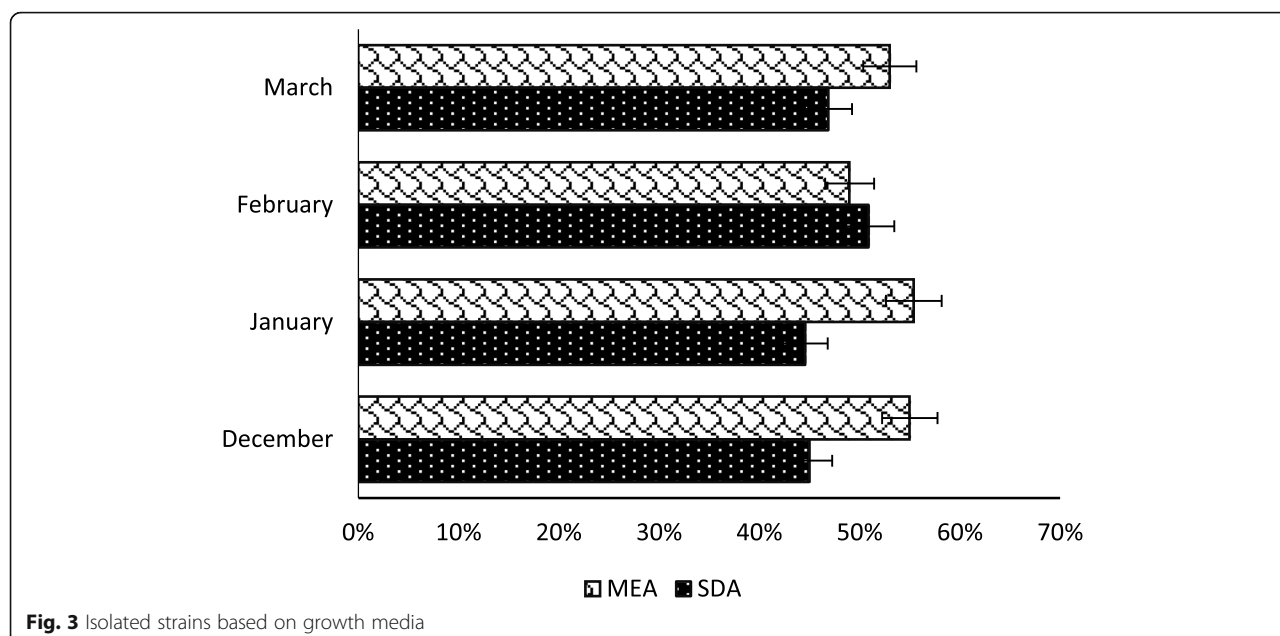


Fig. 2 Isolated strains based on site



one by one in the model. Surprisingly, the two different environments analyzed in each district (green vs. busy) and growth media had no detectable effect on the airborne fungal community. Since culture medium did not affect fungal community structure, observations divided by the media were collapsed in order to avoid pseudoreplication in further community analyses.

Discussion

This is the first study on culturable airborne fungi in Tianjin City, China. The research project was carried out to investigate the concentration, identity and diversity of airborne fungi present in the outdoor environments of the studied city. The 4 analyzed urban districts, each comprising a green and a busy site, showed a high airborne fungal diversity, which resulted in the isolation of 560 strains belonging to 110 fungal species in 49 genera. Previous studies have shown the presence of less

diverse culturable airborne fungal communities, compare to Tianjin, in other cities of China, such as Beijing, where 40 species belonging to 14 genera were recorded [26], Hangzhou, with 85 species in 21 genera [40], and Shenzhen (27 species, 18 genera) [46]. Overall, a fungal concentration ranging from 0 to 3224.13 CFU m⁻³ was recorded across the eight different analyzed sites in Tianjin. The average concentration was 625 CFU m⁻³ on SDA medium and 720 CFU m⁻³ on MEA (Table 1). Many studies have reported various concentrations of airborne fungi across cities in different countries [5, 40, 51, 52], in some cases showing that the outdoor environment fungal diversity and concentration depended on the traffic flow, human activities and vegetation presence [52–54]. For example, in a study conducted in different regions of the US, Shelton et al. [5] reported a median outdoor fungal concentration of 500 CFU m⁻³, while Kalyoncu et al. [51] found a fungal concentration of 412

Table 1 Fungal colony average concentration detected in Tianjin outdoor environments

Sampling Month	Medium	Colony Concentration (CFU m ⁻³)							
		NanKai B	NanKai G	HePing B	HePing G	Hexi B	Hexi G	Hebei B	Hebei G
December	SDA	78.64	78.64	471.82	157.27	157.27	550.46	314.55	1022.29
	MEA	235.91	157.27	471.82	157.27	629.1	78.64	943.65	786.37
January	SDA	0	157.27	314.55	235.91	157.27	629.1	550.46	629.1
	MEA	157.27	235.91	2359.1	235.91	157.27	707.74	943.65	471.82
February	SDA	943.65	1179.56	550.46	865.01	393.19	1572.75	471.82	629.1
	MEA	629.1	1100.92	1022.29	550.46	550.46	1494.11	550.46	471.82
March	SDA	3224.13	235.91	786.37	393.19	393.19	78.64	2437.76	1336.84
	MEA	2988.22	471.82	1572.75	550.46	314.55	865.01	1494.11	1808.66

Sampling district name (Nankai, Heping, Hexi, Hebei), site (G Green, B Busy), and isolation medium (MEA Malt Extract Agar, SDA Sabouraud Dextrose Agar) are indicated

Table 2 Permutational multivariate analysis showing the effects of location, weather and month on fungal community abundance

	Degrees of freedom	F-value	adjusted R2	P-value
Month	3	3.573	0.175	0.001
logWind	1	2.132	0.019	0.007
Humidity	1	1.734	0.009	0.058
logTemp	1	1.539	0.005	0.112
Site	7	1.103	0.054	0.264
Air pressure	1	1.142	0.005	0.331
Busy vs. Green Site	1	1.051	0.007	0.392
Residuals	17	0.405		
Total	31			

CFU m^{-3} in eight different environments within Yunussemre City, in Turkey. Numerous studies have reported on the outdoor airborne fungal concentrations in different cities of China. Fang et al. [42] observed a fungal concentration ranging from 4.8×10^2 CFU m^{-3} to 2.4×10^4 CFU m^{-3} in three different sampling sites in Beijing, whereas the concentration of culturable fungi in the air was found to range from < 12 to 8767 CFU m^{-3} (mean value 848 CFU m^{-3}) in a study performed in Hangzhou, in four sampling locations characterized by different urban functions [40].

The most abundant fungal genera found in our analyzed environments included *Alternaria*, *Cladosporium*, and *Naganishia* (Supplementary Tables S4 and S5). *Alternaria* and *Cladosporium* have been similarly reported as the most common airborne fungi in other research studies performed in Nanjing, Beijing and Hangzhou [26, 40, 45]. *Alternaria* was the dominant genus recorded in Tianjin, comprising almost one fourth of all the isolated airborne fungal strains. Among the recorded *Alternaria* species, *A. alternata*, which was the most frequently occurring *taxon* of the whole study, is known as a common and widespread allergenic fungus, responsible for Immunoglobulin E (IgE) mediated respiratory diseases, specifically for asthma exacerbation [55]. Besides, 16 allergens of *A. alternata* have been overall reported so far [56, 57]. *Cladosporium* was recorded as the second most common genus in Tianjin air environments. *Cladosporium* species are mostly saprotrophic [58], but have been occasionally described as opportunistic causative agents of infections in animals and humans [59, 60]. In a study performed by Sellart et al. [61] in Spain, where nasal samples of 135 people (healthy and allergic) were analyzed, *Cladosporium* was reported as the prevalent fungal genus in nasal microbiota, being *C. herbarum* and *C. cladosporioides* the most abundant species (23.6%). Ma et al. [62], in another clinical study carried out in China, reported *C. cladosporioides* as a cause of Phaeohyphomycotic dermatitis in giant panda. The genus *Naganishia*, showing the third highest concentration in

our results, can be considered a peculiar presence in Tianjin outdoor environments, as this genus was not reported in any other study on airborne fungi conducted in China. *Naganishia albida*, which accounted for 6.4 % of total isolated strains in this work, was reported as the cause of Otomycosis [63] and superficial skin infection [64] in case studies performed in Iran. The presence of *N. albida* in Tianjin air samples deserves further attention as a potential threat for human health. Long-term monitoring of this fungal species distribution and abundance in both outdoor and indoor Tianjin city environments is recommended.

Previous studies have shown that environmental factors such as temperature, humidity, wind speed and atmospheric pressure could affect the diversity of airborne fungi in different environments [58]. The analyses performed in our work revealed that wind had the highest influence on fungal community, among the studied environmental factors. This result is in agreement with previous works showing that wind enhanced the release and dispersal of fungal spores, by favoring the removal of spores from fruit bodies and their transportation and suspension in the air [65, 66]. Other environmental factors analyzed in our study, including temperature, humidity and atmospheric pressure showed a lower, but still significant effect on diversity and concentration of airborne fungi. Looking at the numerous aeromycological studies on the influence of meteorological factors on airborne fungal concentration that have been published [65–70], the results of our work are in agreement with findings from Giri et al. [65] who observed a very significant effect of atmospheric pressure and wind speed on particulate matter concentration as compared to temperature and relative humidity. Similar results were obtained by Santiago et al. [71] who studied the effect of meteorological factors on outdoor airborne fungi, using both culture-based methods and direct microscopic analysis of fungi. In the latter work, a significant correlation between fungal colony growth and relative humidity and wind speed was recorded. Some previous studies, instead, reported a major influence

of temperature and humidity on the diversity of air borne fungi. For instance, in the work performed by Fang et al. [40] in Hangzhou, air temperature was found to sustain fungal growth and germination in all seasons except winter, whereas a study carried out in Beijing, showed that both air temperature and humidity in summer and autumn were more appropriate for fungal propagation as compared to winter season [26]. A strong relationship between fungal growth and relative humidity was reported by Jones and Harrison [72], who showed that the humidity in the air could support different mycelial structures growth in fungi, ultimately resulting in the increase in fungal air-borne concentration. In a study performed in Nepal, the atmospheric pressure was found to affect the suspension, dispersal, and sedimentation of particulate matter in the air [65], which was later interpreted by Pyrri et al. [73] to support the hypothesis that high atmospheric pressure combined with elevated temperature may increase the suspension of fungal spores in the air, and prevent their sedimentation. Further studies based on large-scale sampling and long-term data collection are necessary to disentangle the effect of different environmental factors affecting the diversity and structure of air borne fungal communities.

In our study, we also tried to understand the effect of different urban district management on the outdoor fungal diversity. We did not observe any significant difference in the concentration of airborne fungi in green vs. busy sites, according to the results of statistical analysis. Different studies have previously suggested a strong association between vegetation coverage and concentration of airborne fungi in outdoor environments. For instance, a study conducted by Fang et al. [26] has shown that the airborne fungi in green areas in Beijing were more diverse than in densely populated and polluted areas. Other studies have reported that areas with more abundant presence of green plants were characterized by higher concentration of airborne fungi [26, 40, 43, 66]. In particular, Picco et al. [66] have found that the presence and growth of parasitic and saprophytic fungi in green areas were supported by phylloplane (leaf surface) availability. The contrasting results obtained from our work could be explained with the relatively small size characterizing the green areas in Tianjin, which could result in a strong influence of surrounding busy areas, thus making the fungal communities inside and outside parks similar. Besides, given that our study was performed during the winter season, when the great majority of plant did not bear leaves, due to the climatic conditions in Tianjin, it is possible that the limited phylloplane availability reduced the effect of leaf surface on fungal diversity registered in the above-mentioned previous studies [66]. Further analyses of Tianjin air borne fungi in different seasons could be useful to test the latter hypothesis. However, the percentage of total

species isolated each month in our study registered a noteworthy shift in the fourth month of sampling (March 2020, Fig. 2) when busy sites showed a significantly higher fungal concentration than green sites, never observed in the previous three months. We cannot exclude that the nationally adopted lockdown, due to the COVID-19 pandemic, had some influence on the latter result. Indeed, we observed a much more intense activity and presence of people in the busy sites during the last month of sampling, when the restrictions related to the lockdown became smaller. This increased activity within the busy sites could have had some effect on the concentration of air borne fungi, although it is also possible that other environmental factors not measured in our study were involved in the observed results variation.

Conclusions

In this study, we shed light on the highly diverse community of airborne fungi characterizing the outdoor environments of Tianjin City. We clarified the role that different environmental factors played in shaping the analyzed fungal community, and revealed the particularly strong effect of the wind on Tianjin air borne fungal diversity and concentration. Our effort to compare fungal communities in busy and green urban areas did not show substantial difference between the two investigated environments. This finding could be related to the relatively small size of parks in Tianjin and/or to the study season, hypotheses that require further studies to be tested. Among the identified cultured fungi, the dominant presence of strains belonging to *Alternaria*, *Cladosporium* and *Naganishia* genera may constitute an important feature of Tianjin outdoor environments, which deserves to be studied from a pathological point of view, due to the potential hazardous effect of these fungal *taxa* on human health. The results from our study may represent a valuable source of information for air quality monitoring, microbial pollution control, and airborne diseases prevention. Further studies are needed to generate additional data from long-term sampling, in order to increase our understanding of air borne fungal population dynamics and composition in Tianjin, across different seasons.

Materials and methods

Sampling sites

This study was conducted in Tianjin city, located in the North-Est of China (39°8'31.99"N, 117°10'36.01"E). The city was built in 1403 on the banks of Hai River at West of Bohai Sea, South of Yanshan Mountains and East to Beijing. It occupies 11,946 km squared land area with an approximated population of 13,589,078 as of 2020, distributed in 15 districts and three counties. Tianjin ranked 29th in world's largest human agglomeration, 4th

largest urban population in China and 11th in the world's most populous city [74].

Eight sites, across 4 urban districts in Tianjin city, were investigated in this study. Two distinct sampling environments were selected in each district, one constituted by an open busy area with high commercial activities and traffic flow (busy site) and the other representative of green areas in urban parks (green site), as presented in Table 3.

Sampling method and culture media

Sampling of fungi in bio-aerosols at the study sites was conducted for four consecutive months, from December 2019 to March 2020. Air samples were collected monthly, when the weather was dry and stable, approximately between 12:00–13:00 o'clock. Airborne fungi were sampled using the open plate method [2, 46, 75], by opening sterile plates containing media for 10 min at a height of 1.5 m above ground, which is representative of the human breathing zone. Minimum distance of 1 m from walls and obstacles was maintained. For each air sampling, 2 petri dishes of 9.0 cm diameter, one containing Sabouraud Dextrose Agar (SDA), another containing Malt Extract Agar (MEA) medium, amended with chloramphenicol (100 mg/L) to inhibit bacterial growth, were used. Environmental parameters including temperature, humidity, wind speed and air pressure were recorded using Huafeng-AccuWeather software at each sampling site. Exposed culture dishes were incubated at 25 °C, in the darkness, and examined for fungal colony growth every 24 h, for 5–7 days. Fungal colonies were observed and counted in each plate. Each colony was carefully picked up, and aseptically inoculated in a new plate for isolation. Fungal morphology was observed in pure cultures, and isolated strains were identified using molecular method. All isolated fungal strains were deposited in the LP Culture Collection (personal culture collection held in the laboratory of Prof. Lorenzo Pecoraro), at the School of Pharmaceutical Science and Technology, Tianjin University, Tianjin, China.

Enumeration of fungi

After incubation and counting of fungal colonies, the concentration obtained from the samples was expressed as CFU per cubic meter of air (CFU m⁻³). Omelyansky formula [76, 77] was used to calculate the fungal concentration in unit CFU m⁻³:

$$N = 5a \times 104(bt)^{-1}$$

where “N” is the concentration of fungi, “a” is the number of fungal colonies per plate, “b” is the total area of the plate (cm²); and “t” is the time duration for opening of plate (min).

Fungal identification

The isolated fungal colonies were identified using DNA-based molecular analysis combined with microscopy. DNA extraction was performed using the cetyltrimethylammonium bromide method [78]. The amplification of fungal rRNA genes internal transcribed spacer (ITS) region was performed using the following universal primer set: ITS1 (5'-TCCGTAGGTGAACCTGCGG-3') and ITS4 (5'-TCCTCCGCTTATTGATATGC-3') [55]. The reaction mixture for PCR (50 µl), consisted of 25.0 µl of 2 × Rapid Taq Master Mix (Vazyme Biotech Co. Ltd, Nanjing), 2 µl of forward primer (10 µM), 2 µl of reverse primer (10 µM) and 2.0 µl (20 ng DNA) of template and 19 µl of double distilled sterilized water. The amplification program was as follows: initial denaturation at 95 °C for 3 min, 30–35 cycles of 95 °C for 15 s, annealing at 60 °C for 15 s, extension at 72 °C for 15 s, followed by a final extension at 72 °C for 5 min. The PCR products were detected by gel electrophoresis using electrophoresis tank (LiuYi, Beijing) on a 1 % agarose gel. The sequences were obtained from Genewiz, Inc., China, and analyzed with the Basic Local Alignment Search Tool (BLAST) program of the National Center for Biotechnology Information, USA (<http://www.ncbi.nlm.nih.gov/Blast.cgi>) in order to identify the closest

Table 3 Detailed information of the eight selected sampling sites in Tianjin

Site	District	Location	GPS Position
Green Sites	Nan Kai	Water park	39°5'23"N, 117°9'42"E
	He Bei	Zhong Shan Park	39°9'21"N, 117°12'24"E
	He Ping	Central Park	39°7'24"N, 117°11'54"E
	He Xi	People's Park	39°6'10"N, 117°12'44"E
Busy Sites	Nan Kai	East gate of TJU	39°6'26"N, 117°10'24"E
	He Bei	Kunwei Hospital	39°9'21"N, 117°12'28"E
	He Ping	Bin Jiang Road	39°7'22"N, 117°11'34"E
	He Xi	Tianjin Foreign Studies University	39°6'21"N, 117°12'18"E

sequence in the NCBI database. DNA sequences were deposited in GenBank (Accession Nos. MW723617–MW724176).

Fungal morphology (branched septate hyphae, pseudo-hyphae, conidiophores, conidia, poroconidia, arthroconidia and sporangiospores, etc.) was examined under Nikon ECLIPSE Ci microscope for identification of isolates following the standard taxonomic keys for different *taxa* [79–83].

Statistical analysis

The frequency of fungal species in petri dishes per site was used in community-level analyses. Wind and temperature values were log-transformed before analyses in order to reduce heteroscedasticity. To address the relative importance of media and environmental factors on the community structure of airborne fungi, we used a multivariate ANOVA as implemented in the Adonis routine of the Vegan package of R [84]. Prior to permutational multivariate analysis, abundance data was transformed into binary format and the Bray–Curtis dissimilarity metric was used to calculate the community distance matrix. Adjusted R-squares were calculated in the final model.

In order to summarize descriptive statistics of fungal concentrations, results were calculated using Excel 2016 software. ANOVA was used for comparing fungal concentrations between different fungal samples and sampling times while the means were separated using Duncan Multiple Range Test (DMRT) in SPSS Version 20.0 (Standard Version, SPSS Inc.) software.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12866-021-02205-2>.

Additional file 1: Supplementary Table S1. Environmental factors recorded in each samplingsite at the time of sampling. **Supplementary Table S2.** Total number of fungal colonies isolated from each location from December 2019 to March 2020. **Supplementary Table S3.** Airborne fungal diversity molecularly detected in Tianjin outdoor environments, from DNA extracted from isolated strains. **Supplementary Table S4.** Isolated airborne fungal genera and number of strains. **Supplementary Table S5.** Isolated air borne fungal species and number of strains

Authors' contributions

Conception and design of the research LP; acquisition of data YN, MDA, XW, SHX, and LP; analysis and interpretation of data YN, MDA, SP, XW, SHX, and LP; drafting the article YN under the guidance and critical review of LP; revising the article for important intellectual content MDA, SP, XW, SHX, PWR and LP. All authors approved the manuscript version to be published.

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Availability of data and materials

All data generated or analysed during this study are included in this published article. The Fungal DNA sequences amplified during this study are available in GenBank under accessions MW723617–MW724176.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests. LP is a member of the editorial board of this journal.

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Analysis of culturable airborne fungi in outdoor environments in Tianjin, China

Supplementary Table S1: Environmental factors recorded in each sampling site at the time of sampling

Month	Sampling sites	Temperature (°C)	Wind speed (Km/h)	Air pressure (MPa)	Humidity (%)
December	Nankai G	-1.00	3.00	1.03	64.00
	Nankai B	1.00	3.00	1.03	55.00
	Hebei G	3.00	3.00	1.03	57.00
	Hebei B	2.00	3.00	1.03	67.00
	Heping G	2.00	0.20	1.03	53.00
	Heping B	1.00	1.90	1.03	53.00
	Hexi G	-2.00	3.00	1.03	53.00
	Hexi B	-2.00	3.00	1.03	53.00
January	Nankai G	-2.00	3.00	1.03	28.00
	Nankai B	3.00	3.00	1.03	29.00
	Hebei G	2.00	0.60	1.03	47.00
	Hebei B	2.00	0.60	1.03	42.00
	Heping G	1.00	3.00	1.03	40.00
	Heping B	2.00	3.00	1.03	29.00
	Hexi G	-1.00	3.00	1.03	53.00
	Hexi B	-1.00	3.00	1.03	53.00
February	Nankai G	3.00	18.10	1.02	54.00
	Nankai B	2.00	18.50	1.02	56.00
	Hebei G	4.00	12.80	1.03	52.00
	Hebei B	5.00	12.10	1.03	51.00
	Heping G	5.00	17.20	1.03	52.00
	Heping B	4.00	17.10	1.03	50.00
	Hexi G	5.00	16.40	1.03	51.00
	Hexi B	6.00	15.90	1.03	52.00
March	Nankai G	24.00	11.00	1.00	28.00
	Nankai B	25.00	11.00	1.05	27.00
	Hebei G	28.00	10.00	1.00	26.00
	Hebei B	27.00	11.00	1.00	26.00
	Heping G	28.00	9.00	1.00	23.00
	Heping B	27.00	9.00	1.01	26.00
	Hexi G	27.00	9.00	1.01	26.00
	Hexi B	29.00	7.00	1.00	28.00

In sample site codes, sampling district name (Nankai, Hexi, Heping, Hebei) and site (G = Green, B = Busy) are indicated.

Supplementary Table S2: Total number of fungal colonies isolated from each location from December 2019 to March 2020

December																	
Fungal species	NanKai P		NanKai G		HePing P		HePing G		HeXi P		HeXi G		HeBei P		HeBei G		Total
	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	
<i>Dothiorella gregaria</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
<i>Filobasidium chernovii</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
<i>Filobasidium magnum</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
<i>Ectophoma multirostrata</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
<i>Aspergillus pseudoglaucus</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
<i>Phoma sp.</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
<i>Trichoderma asperellum</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
<i>Cladosporium anthropophilum</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
<i>Colletotrichum gloeosporioides</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Aspergillus ochraceus</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Phoma herbarum</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Aspergillus nomius</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Cladosporium asperulatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<i>Fusarium chlamydosporum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<i>Fusarium equiseti</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
<i>Cladosporium subuliforme</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<i>Phoma multirostrata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<i>Alternaria eichhorniae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<i>Naganishia globosa</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
<i>Erythrobasidium hasegawianum</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
<i>Purpureocillium lilacinum</i>	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
<i>Cladosporium xanthochromaticum</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2

<i>Didymella pedaeiae</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
<i>Didymella subherbarum</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
<i>Epicoccum latusicollum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
<i>Phoma medicaginis</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
<i>Cladosporium perangustum</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
<i>Fusarium cf. incarnatum-equiseti</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
<i>Cladosporium sp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
<i>Sistotrema brinkmannii</i>	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	4
<i>Cladosporium pseudocladosporioides</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	4
<i>Epicoccum sorghinum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	5
<i>Valsa sordida</i>	0	0	0	0	0	2	1	1	0	0	0	0	0	1	0	0	5
<i>Alternaria alternata</i>	0	0	0	0	2	1	1	0	0	0	0	0	0	1	2	0	7
<i>Alternaria tenuissima</i>	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	3	8
<i>Cladosporium cladosporioides</i>	0	1	1	1	3	0	0	0	1	0	0	0	0	2	0	1	10
Total	1	3	1	2	6	6	2	2	2	8	7	1	4	12	13	10	80
January																	
Fungal species	NanKai P		NanKai G		HePing P		HePing G		HeXi P		HeXi G		HeBei P		HeBei G		Total
	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	
<i>Cladosporium cladosporioides</i>	0	0	0	0	1	0	0	1	0	1	2	1	2	1	4	0	13
<i>Naganishia albida</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Aspergillus ostianus</i>	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3
<i>Curvularia tsudae</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
<i>Epicoccum nigrum</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
<i>Fusarium equiseti</i>	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3
<i>Filobasidium magnum</i>	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2
<i>Cladosporium asperulatum</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
<i>Microsphaeropsis olivacea</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2

<i>Filobasidium uniguttulatum</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
<i>Alternaria alternata</i>	0	1	0	1	0	0	0	1	0	0	2	0	2	1	1	0	9
<i>Nothophoma quercina</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
<i>Aspergillus nomius</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Fungal endophyte sp.</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Alternaria brassicicola</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Didymella pedaeiae</i>	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Epicoccum sorghinum</i>	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Rhizopus oryzae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
<i>Cladosporium sp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<i>Phoma macrostoma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<i>Massarina igniaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<i>Aspergillus flavus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<i>Cladosporium xanthochromaticum</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
<i>Paraconiothyrium hawaiiense</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<i>Dothiorella viticola</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<i>Naganishia globosa</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	3
<i>Phoma multirostrata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
<i>Valsa sordida</i>	0	0	0	0	0	0	1	1	0	0	0	0	3	0	0	2	7
<i>Cladosporium subuliforme</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<i>Ectophoma multirostrata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
<i>Didymella sp.</i>	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
<i>Coniothyrium aleuritis</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
<i>Alternaria tenuissima</i>	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
<i>Aureobasidium pullulans</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Total	0	2	2	3	4	3	3	3	2	2	8	9	7	12	8	6	74
February																	

Fungal species	NanKai P		NanKai G		HePing P		HePing G		HeXi P		HeXi G		HeBei P		HeBei G		Total
	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	SDA	MEA	
<i>Epicoccum sorghinum</i>	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Alternaria alternata</i>	2	2	5	1	1	1	4	0	0	1	5	2	0	0	0	1	25
<i>Alternaria longipes</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Alternaria tenuissima</i>	0	1	0	2	2	3	2	0	1	1	2	5	1	2	0	0	22
<i>Aspergillus flavus</i>	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Aspergillus niger</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<i>Aureobasidium pullulans</i>	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
<i>Bipolaris zeae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<i>Cladosporium anthropophilum</i>	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	3
<i>Cladosporium asperulatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
<i>Cladosporium cladosporioides</i>	1	1	4	1	0	2	5	2	2	1	2	1	3	0	1	3	29
<i>Cladosporium perangustum</i>	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2
<i>Cladosporium sp.</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<i>Cladosporium tenuissimum</i>	0	0	0	1	0	0	0	0	1	0	2	0	0	0	0	0	4
<i>Cladosporium uredinicola</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Colletotrichum gloeosporioides</i>	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4
<i>Coreomyces sp.</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
<i>Curvularia sp.</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Daldinia eschscholtzii</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
<i>Didymella glomerata</i>	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	2
<i>Didymella macrostoma</i>	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
<i>Didymella pedaeiae</i>	2	1	0	0	0	0	0	0	0	0	1	0	0	0	2	0	6
<i>Erythrobasidium hasegawianum</i>	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	2
<i>Fusarium oxysporum</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Fusarium verticillioides</i>	0	0	0	0	1	2	0	1	0	3	1	3	1	2	1	0	15

<i>Kazachstania humilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<i>Lasiodiplodia theobromae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<i>Microsphaeropsis olivacea</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
<i>Naganishia albida</i>	1	2	2	8	2	1	0	0	0	0	0	1	0	0	0	0	17
<i>Papiliotrema flavescens</i>	0	0	0	0	0	0	0	2	0	1	1	2	0	1	0	1	8
<i>Paraconiothyrium hawaiiense</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
<i>Periconia epilithographicola</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
<i>Phoma multirostrata</i>	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2
<i>Symmetrospora foliicola</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<i>Symmetrospora symmetrica</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<i>Cladosporium cladosporioides</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Total	12	8	15	14	7	13	11	7	5	7	20	19	6	7	8	6	165

March

[illegible]

<i>Cladosporium anthropophilum</i>	0	0	0	1	0	2	0	0	0	0	0	1	0	2	0	0	6
<i>Cladosporium cladosporioides</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
<i>Cladosporium gossypiicola</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
<i>Cladosporium herbarum</i>	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	0	6
<i>Cladosporium ramotenellum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<i>Cladosporium sp.</i>	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	3
<i>Cladosporium tenuissimum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<i>Colletotrichum gloeosporioides</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
<i>Coniothyrium aleuritidis</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Coniothyrium pyrinum</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Cytospora chrysosperma</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
<i>Didymella bryoniae</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Didymella macrostoma</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Didymella pedaeiae</i>	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6
<i>Didymellaceae sp.</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Dioszegia zsolttii</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2
<i>Dothideomycetes sp.</i>	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
<i>Dothiorella gregaria</i>	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
<i>Dothiorella viticola</i>	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
<i>Epicoccum nigrum</i>	0	0	0	0	0	4	0	0	0	0	0	0	2	1	0	0	7
<i>Fusarium equiseti</i>	0	0	0	0	0	2	2	0	0	0	0	1	1	0	0	3	9
<i>Fusarium tricinctum</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Herpotrichia striatispora</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
<i>Kazachstania humilis</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Microsphaeropsis olivacea</i>	1	0	0	0	0	1	0	0	0	0	0	0	2	1	0	0	5
<i>Naganishia adeliensis</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
<i>Naganishia albida</i>	4	2	2	0	1	1	0	1	0	0	0	2	4	0	0	1	18
<i>Naganishia friedmannii</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1

<i>Naganishia globosa</i>	6	15	0	0	0	0	0	0	0	1	0	1	4	3	0	0	30
<i>Naganishia liquefaciens</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Naganishia randhawae</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
<i>Naganishia uzbekistanensis</i>	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	3
<i>Neosetophoma samarorum</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Nothophoma</i> sp.	0	0	0	0	1	1	1	0	0	0	0	0	1	0	0	0	4
<i>Papiliotrema laurentii</i>	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
<i>Paraconiothyrium archidendri</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<i>Paraconiothyrium hawaiiense</i>	2	3	0	0	0	0	0	0	0	0	0	1	0	0	1	1	8
<i>Phaeosphaeria</i> sp.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Phoma herbarum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
<i>Phoma macrostoma</i> var. <i>macrostoma</i>	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4
<i>Phoma medicaginis</i>	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	3
<i>Phoma sojicola</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
<i>Phoma</i> sp.	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
<i>Rhodotorula mucilaginosa</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	4
<i>Stagonosporopsis cucurbitacearum</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
<i>Talaromyces funiculosus</i>	0	0	0	0	0	0	0	0	2	0	0	0	1	0	1	0	4
<i>Talaromyces marneffeii</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3	1	6
<i>Thelebolus microsporus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Valsa sordida</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
<i>Vishniacozyma</i> sp.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
<i>Vishniacozyma tephrensis</i>	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Total	41	38	3	6	10	20	5	7	5	4	1	11	31	19	17	23	241

Supplementary Table S3: Airborne fungal diversity molecularly detected in Tianjin outdoor environments, from DNA extracted from isolated strains

Sample No.	Sampling Month	Sample Code	GenBank	Best BLAST Match(es)	Accession Code	Overlap Length	% Match	Max Score	Query Cover	E Value
1	DEC	HEXI B MEA	MW723617	<i>Dothiorella gregaria</i>	EU520055.1	866	99.77%	866	99%	0
2	DEC	HEXI B MEA	MW723618	<i>Filobasidium</i> sp.	MN299307.1	946	99.81%	946	100%	0
				<i>Filobasidium chernovii</i>	MN848516.1	935	99.42%	935	100%	0
3	DEC	HEXI B MEA	MW723619	<i>Sistotrema brinkmannii</i>	KM232472.1	1417	98.51%	1417	100%	0
4	DEC	HEXI B MEA	MW723620	<i>Filobasidium magnum</i>	MH203407.1	955	100.00%	955	100%	0
5	DEC	HEXI B MEA	MW723621	<i>Sistotrema</i> sp.	MN905876.1	973	100.00%	973	98%	0
				<i>Sistotrema brinkmannii</i>	KM232472.1	973	100.00%	973	98%	0
6	DEC	HEXI B MEA	MW723622	<i>Sistotrema brinkmannii</i>	KM232472.1	1367	97.39%	1367	100%	0
7	DEC	HEXI B MEA	MW723623	<i>Ectophoma multirostrata</i>	MG840682.1	1666	96.95%	1208	99%	0
8	DEC	HEXI B MEA	MW723624	<i>Cladosporium pseudocladosporioides</i>	MT582794.1	854	100.00%	854	100%	0
9	DEC	HEXI G MEA	MW723625	<i>Aspergillus pseudoglaucus</i>	MT582752.1	922	100.00%	922	100%	0
10	DEC	HEXI B SDA	MW723626	<i>Cladosporium cladosporioides</i>	MT573472.1	957	97.17%	957	100%	0
11	DEC	HEXI B SDA	MW723627	<i>Phoma</i> sp.	KY088083.1	575	100.00%	575	100%	5.00E-160
12	DEC	HEXI G SDA	MW723628	<i>Trichoderma asperellum</i>	KC312632.1	1648	98.40%	1648	99%	0
13	DEC	HEXI G SDA	MW723629	<i>Sistotrema brinkmannii</i>	KM232477.1	2922	98.43%	2922	100%	0
14	DEC	HEXI G SDA	MW723630	<i>Cladosporium anthropophilum</i>	MT508803.1	408	100.00%	408	100%	4.00E-110
15	DEC	HEXI G SDA	MW723631	<i>Cladosporium</i> sp.	KC871037.1	983	99.80%	983	99%	0

				<i>Cladosporium cladosporioides</i>	KT959291.1	979	100.00%	979	98%	0
16	DEC	HEXI G SDA	MW723632	<i>Cladosporium cladosporioides</i>	KT959291.1	846	97.39%	846	100%	0
17	DEC	HEXI G SDA	MW723633	<i>Cladosporium cladosporioides</i>	KT959291.1	808	95.99%	808	100%	0
18	DEC	HEXI G SDA	MW723634	<i>Cladosporium xanthochromaticum</i>	MH605338.1	944	98.16%	944	100%	0
19	DEC	NANKAI B MEA	MW723635	<i>Colletotrichum gloeosporioides</i>	HQ874970.1	58	100.00%	58	100%	8.00E-06
20	DEC	NANKAI B MEA	MW723636	<i>Cladosporium cladosporioides</i>	MT573472.1	931	96.46%	931	99%	0
21	DEC	NANKAI B MEA	MW723637	<i>Aspergillus ochraceus</i>	MN088855.1	953	95.62%	953	100%	0
22	DEC	NANKAI G MEA	MW723638	<i>Phoma herbarum</i>	KJ767079.1	883	96.29%	883	100%	0
23	DEC	NANKAI G MEA	MW723639	<i>Cladosporium cladosporioides</i>	MT573472.1	944	96.81%	944	99%	0
24	DEC	NANKAI B SDA	MW723640	<i>Aspergillus nomius</i>	MF510822.1	1679	98.71%	1243	100%	0
25	DEC	NANKAI G SDA	MW723641	<i>Cladosporium cladosporioides</i>	JQ768323.1	963	97.20%	963	99%	0
26	DEC	HEBEI B MEA	MW723642	<i>Epicoccum sorghinum</i>	MN215621.1	1197	97.70%	1197	100%	0
27	DEC	HEBEI B MEA	MW723643	<i>Didymella pedaeiae</i>	MH923258.1	1533	97.25%	1110	99%	0
28	DEC	HEBEI B MEA	MW723644	<i>Didymella subherbarum</i>	KR534651.1	1507	96.26%	1050	100%	0
29	DEC	HEBEI B MEA	MW723645	<i>Cladosporium cladosporioides</i>	JQ768323.1	977	97.56%	977	100%	0
30	DEC	HEBEI B MEA	MW723646	<i>Epicoccum sorghinum</i>	MN215621.1	1186	97.41%	1186	99%	0
31	DEC	HEBEI B MEA	MW723647	<i>Epicoccum latusicollum</i>	MN215613.1	1149	96.94%	1149	100%	0
32	DEC	HEBEI B MEA	MW723648	<i>Phoma medicaginis</i>	KT192426.1	854	97.97%	854	99%	0
33	DEC	HEBEI G MEA	MW723649	<i>Epicoccum latusicollum</i>	MN215613.1	1144	96.79%	1144	100%	0
34	DEC	HEBEI G MEA	MW723650	<i>Cladosporium asperulatum</i>	MN202774.1	909	97.73%	909	99%	0
35	DEC	HEBEI G MEA	MW723651	<i>Cladosporium cladosporioides</i>	MT258647.1	972	97.21%	972	100%	0
36	DEC	HEBEI G MEA	MW723652	<i>Alternaria tenuissima</i>	KU937315.1	2046	98.06%	1524	99%	0

37	DEC	HEBEI G MEA	MW723653	<i>Cladosporium pseudocladosporioides</i>	MT582794.1	1476	98.34%	1476	100%	0
38	DEC	HEBEI G MEA	MW723654	<i>Alternaria tenuissima</i>	MN907695.1	1003	97.93%	1003	100%	0
39	DEC	HEBEI G MEA	MW723655	<i>Cladosporium perangustum</i>	KF706664.1	893	97.87%	893	99%	0
40	DEC	HEBEI G MEA	MW723656	<i>Cladosporium xanthochromaticum</i>	MT464453.1	905	98.26%	905	100%	0
41	DEC	HEBEI G MEA	MW723657	<i>Alternaria tenuissima</i>	MN907695.1	972	97.21%	972	100%	0
42	DEC	HEBEI G MEA	MW723658	<i>Fusarium chlamydosporum</i>	MT032393.1	963	98.02%	963	99%	0
43	DEC	HEBEI B SDA	MW723659	<i>Fusarium equiseti</i>	KJ412501.1	918	96.73%	918	99%	0
44	DEC	HEBEI B SDA	MW723660	<i>Fusarium incarnatum</i>	MN646258.1	915	96.74%	915	99%	0
45	DEC	HEBEI B SDA	MW723661	<i>Cladosporium perangustum</i>	MF473173.1	937	96.63%	937	99%	0
46	DEC	HEBEI B SDA	MW723662	<i>Phoma medicaginis</i>	KT192426.1	915	97.06%	915	99%	0
47	DEC	HEBEI G SDA	MW723663	<i>Cladosporium subuliforme</i>	KP701938.1	1389	97.31%	1389	99%	0
48	DEC	HEBEI G SDA	MW723664	<i>Alternaria tenuissima</i>	MN907695.1	922	95.65%	922	100%	0
49	DEC	HEBEI G SDA	MW723665	<i>Alternaria alternata</i>	KT192411.1	952	96.53%	952	99%	0
50	DEC	HEBEI G SDA	MW723666	<i>Epicoccum sorghinum</i>	MT125854.1	1194	97.70%	1194	99%	0
51	DEC	HEBEI G SDA	MW723667	<i>Cladosporium pseudocladosporioides</i>	MT582794.1	1402	96.51%	1402	99%	0
52	DEC	HEBEI G SDA	MW723668	<i>Phoma multirostrata</i>	JX966636.1	1678	96.67%	1197	100%	0
53	DEC	HEBEI G SDA	MW723669	<i>Cladosporium pseudocladosporioides</i>	MT582794.1	1448	98.08%	1448	99%	0
54	DEC	HEBEI G SDA	MW723670	<i>Epicoccum sorghinum</i>	MK516206.1	1170	97.11%	1170	99%	0
55	DEC	HEBEI G SDA	MW723671	<i>Epicoccum sorghinum</i>	MT125854.1	1114	95.68%	1114	99%	0
56	DEC	HEBEI G SDA	MW723672	<i>Cladosporium</i> sp.	MK336600.1	953	96.54%	953	99%	0
				<i>Cladosporium xanthochromaticum</i>	MF473319.1	953	96.54%	953	99%	0
57	DEC	HEBEI G SDA	MW723673	<i>Alternaria tenuissima</i>	MN907695.1	944	96.35%	944	99%	0

58	DEC	HEBEI G SDA	MW723674	<i>Alternaria alternata</i>	KT192411.1	939	96.17%	939	100%	0
59	DEC	HEBEI G SDA	MW723675	<i>Alternaria eichhorniae</i>	MN128537.1	902	95.10%	902	100%	0
60	DEC	HEBEI B MEA	MW723676	<i>Alternaria alternata</i>	KJ728679.1	2313	96.61%	1271	99%	0
61	DEC	HEBEI B MEA	MW723677	<i>Cladosporium cladosporioides</i>	MK127535.1	846	95.98%	846	98%	0
62	DEC	HEBEI B MEA	MW723678	<i>Fusarium incarnatum</i>	MN646258.1	915	96.74%	915	99%	0
63	DEC	HEBEI B MEA	MW723679	<i>Cladosporium</i> sp.	JQ388271.1	926	96.76%	926	99%	0
				<i>Cladosporium cladosporioides</i>	MK127535.1	854	96.18%	854	93%	0
64	DEC	HEBEI B MEA	MW723680	<i>Valsa sordida</i>	MK994101.1	1144	100.00%	1144	100%	0
65	DEC	HEPING B MEA	MW723681	<i>Didymella subherbarum</i>	KR534651.1	1427	95.45%	1013	98%	0
66	DEC	HEPING B MEA	MW723682	<i>Alternaria</i> sp.	KP027305.1	1828	97.90%	1144	100%	0
				<i>Alternaria alternata</i>	JQ080319.1	1967	97.43%	1116	100%	0
67	DEC	HEPING B MEA	MW723683	<i>Valsa sordida</i>	MK994101.1	987	95.24%	987	100%	0
68	DEC	HEPING B MEA	MW723684	Uncultured fungus	MT635325.1	1044	96.69%	1044	98%	0
				<i>Naganishia globosa</i>	MH809978.1	1044	96.69%	1044	98%	0
69	DEC	HEPING B MEA	MW723685	<i>Valsa sordida</i>	MK994101.1	1033	96.65%	1033	99%	0
70	DEC	HEPING B MEA	MW723686	<i>Erythrobasidium hasegawianum</i>	AF444522.1	977	95.18%	977	100%	0
71	DEC	HEPING G MEA	MW723687	<i>Valsa sordida</i>	MK994101.1	985	99.81%	985	100%	0
72	DEC	HEPING G MEA	MW723688	<i>Purpureocillium lilacinum</i>	MF996811.1	996	100.00%	996	100%	0
73	DEC	HEPING B SDA	MW723689	<i>Alternaria alternata</i>	MN402464.1	889	100.00%	889	100%	0
74	DEC	HEPING B SDA	MW723690	<i>Alternaria alternata</i>	MN615420.1	867	100.00%	867	100%	0
75	DEC	HEPING B SDA	MW723691	<i>Didymella pedaeiae</i>	MH923258.1	1450	95.22%	1048	99%	0
76	DEC	HEPING B SDA	MW723692	<i>Cladosporium cladosporioides</i>	KU527802.2	756	97.80%	756	99%	0

77	DEC	HEPING B SDA	MW723693	<i>Cladosporium cladosporioides</i>	MT508787.1	893	98.42%	893	100%	0
78	DEC	HEPING B SDA	MW723694	<i>Cladosporium</i> sp.	HQ671188.1	841	95.65%	841	99%	0
				<i>Cladosporium cladosporioides</i>	KY114882.1	835	95.63%	835	99%	0
79	DEC	HEPING G SDA	MW723695	<i>Alternaria</i> sp.	KP027305.1	2503	96.28%	1393	100%	0
				<i>Alternaria alternata</i>	JQ080319.1	2621	95.69%	1356	100%	0
80	DEC	HEPING G SDA	MW723696	<i>Valsa sordida</i>	MK656251.1	911	98.46%	911	100%	0
1	JAN	HEXI B MEA	MW723697	<i>Cladosporium cladosporioides</i>	MT258647.1	989	97.74%	989	100%	0
2	JAN	HEXI B MEA	MW723698	<i>Naganishia albida</i>	KY238156.1	1120	100.00%	1120	100%	0
3	JAN	HEXI G MEA	MW723699	<i>Cladosporium</i> sp.	KT588451.1	908	100.00%	908	99%	0
				<i>Cladosporium cladosporioides</i>	LT603044.1	908	100.00%	908	99%	0
4	JAN	HEXI G MEA	MW723700	<i>Aspergillus ostianus</i>	MT446137.1	998	97.92%	998	100%	0
5	JAN	HEXI G SDA	MW723701	<i>Aspergillus ostianus</i>	MT446137.1	965	96.88%	965	100%	0
6	JAN	HEXI G MEA	MW723702	<i>Curvularia tsudae</i>	MN368920.1	936	100.00%	936	100%	0
7	JAN	HEXI G MEA	MW723703	<i>Epicoccum nigrum</i>	KY587324.1	1069	99.76%	803	100%	0
8	JAN	HEXI G MEA	MW723704	<i>Fusarium equiseti</i>	MT626672.1	944	97.81%	944	99%	0
9	JAN	HEXI G MEA	MW723705	<i>Filobasidium magnum</i>	MF114305.1	1008	100.00%	967	88%	0
10	JAN	HEXI G MEA	MW723706	<i>Aspergillus ostianus</i>	MT446137.1	994	97.91%	994	99%	0
11	JAN	HEXI G MEA	MW723707	<i>Cladosporium asperulatum</i>	MN202774.1	922	100.00%	922	99%	0
12	JAN	HEXI G MEA	MW723707	<i>Microsphaeropsis olivacea</i>	MN944412.1	813	99.76%	813	100%	0
13	JAN	HEXI B SDA	MW723708	<i>Filobasidium uniguttulatum</i>	KC152903.1	965	100.00%	965	99%	0
14	JAN	HEXI B SDA	MW723709	<i>Filobasidium magnum</i>	MF114305.1	991	100.00%	991	99%	0
15	JAN	HEXI G SDA	MW723710	<i>Cladosporium cladosporioides</i>	MT573472.1	924	96.11%	924	100%	0

16	JAN	HEXI G SDA	MW723711	<i>Fusarium equiseti</i>	MT626672.1	941	97.63%	941	99%	0
17	JAN	HEXI G SDA	MW723712	<i>Fusarium equiseti</i>	MT626672.1	926	97.10%	926	100%	0
18	JAN	HEXI G SDA	MW723713	<i>Cladosporium cladosporioides</i>	MT258647.1	976	97.24%	976	99%	0
19	JAN	HEXI G SDA	MW723714	<i>Alternaria alternata</i>	MT453271.1	2004	97.53%	2004	100%	0
20	JAN	HEXI G SDA	MW723715	<i>Alternaria alternata</i>	MT453271.1	2030	97.95%	2030	100%	0
21	JAN	HEXI G SDA	MW723716	<i>Nothophoma quercina</i>	MN267493.1	926	100.00%	926	100%	0
22	JAN	NANKAI B MEA	MW723717	<i>Alternaria alternata</i>	MF422130.1	1285	97.77%	1081	100%	0
23	JAN	NANKAI B MEA	MW723718	<i>Aspergillus nomius</i>	KR905619.1	1576	98.66%	1576	99%	0
24	JAN	NANKAI G MEA	MW723719	Fungal endophyte	HM537037.1	918	96.26%	918	100%	0
				<i>Cladosporium ramotenellum</i>	MT529231.1	913	96.08%	913	100%	0
25	JAN	NANKAI G MEA	MW723720	<i>Alternaria alternata</i>	MF422133.1	1003	96.10%	1003	100%	0
26	JAN	NANKAI G MEA	MW723721	<i>Alternaria</i> sp.	KJ527009.1	1079	99.33%	1079	100%	0
				<i>Alternaria brassicicola</i>	KF542557.1	1079	99.33%	1079	100%	0
27	JAN	NANKAI G SDA	MW723722	<i>Didymella pedaeiae</i>	MH923258.1	1496	96.36%	1085	100%	0
28	JAN	NANKAIG SDA	MW723723	<i>Epicoccum sorghinum</i>	MF061768.1	856	97.06%	856	100%	0
29	JAN	HEBEI B MEA	MW723724	<i>Rhizopus oryzae</i>	MH877020.1	1131	96.89%	1131	99%	0
30	JAN	HEBEI B MEA	MW723725	<i>Alternaria alternata</i>	MN907695.1	957	96.70%	957	99%	0
31	JAN	HEBEI B MEA	MW723726	<i>Cladosporium</i> sp.	MK336600.1	937	95.42%	937	99%	0
32	JAN	HEBEI B MEA	MW723727	<i>Phoma macrostoma</i>	KF293857.1	822	96.23%	822	99%	0
33	JAN	HEBEI B MEA	MW723728	<i>Massarina igniaria</i>	GQ377480.1	950	97.49%	950	99%	0
34	JAN	HEBEI B MEA	MW723729	<i>Aspergillus flavus</i>	MT541875.1	966	98.03%	966	98%	0
35	JAN	HEBEI B MEA	MW723730	<i>Cladosporium xanthochromaticum</i>	MF473319.1	944	96.21%	944	99%	0

36	JAN	HEBEI B MEA	MW723731	<i>Rhizopus oryzae</i>	MH877018.1	1591	96.58%	1591	99%	0
37	JAN	HEBEI B MEA	MW723732	<i>Paraconiothyrium hawaiiense</i>	EU715661.1	1838	95.46%	1838	99%	0
38	JAN	HEBEI B MEA	MW723733	<i>Dothiorella viticola</i>	KY385661.1	885	95.37%	885	99%	0
39	JAN	HEBEI B MEA	MW723734	<i>Naganishia globosa</i>	MH809978.1	1343	95.20%	1343	99%	0
40	JAN	HEBEI B MEA	MW723735	<i>Cladosporium cladosporioides</i>	MT258647.1	989	97.74%	989	98%	0
41	JAN	HEBEI G MEA	MW723736	<i>Microsphaeropsis olivacea</i>	MN944412.1	909	96.58%	909	97%	0
42	JAN	HEBEI G MEA	MW723737	<i>Phoma multirostrata</i>	JX966636.1	1610	95.74%	1164	100%	0
43	JAN	HEBEI G MEA	MW723738	<i>Valsa sordida</i>	MK994101.1	1000	95.57%	1000	100%	0
44	JAN	HEBEI G MEA	MW723739	<i>Valsa sordida</i>	MK994101.1	979	95.08%	979	100%	0
45	JAN	HEBEI G MEA	MW723740	<i>Cladosporium subuliforme</i>	KP701938.1	1339	96.34%	1339	99%	0
46	JAN	HEBEI G MEA	MW723741	<i>Naganishia globosa</i>	MH809978.1	1491	99.15%	1491	100%	0
47	JAN	HEBEI B SDA	MW723742	<i>Valsa sordida</i>	MK994101.1	994	95.79%	994	98%	0
48	JAN	HEBEI B SDA	MW723743	<i>Valsa sordida</i>	MK994101.1	1072	98.06%	1072	100%	0
49	JAN	HEBEI B SDA	MW723744	<i>Alternaria alternata</i>	KT192411.1	658	97.35%	658	99%	0
50	JAN	HEBEI B SDA	MW723745	<i>Alternaria alternata</i>	MT420645.1	935	96.02%	935	100%	0
51	JAN	HEBEI B SDA	MW723746	<i>Cladosporium cladosporioides</i>	KY114882.1	885	97.32%	885	99%	0
52	JAN	HEBEI B SDA	MW723748	<i>Cladosporium cladosporioides</i>	MK127535.1	883	96.96%	883	99%	0
53	JAN	HEBEI B SDA	MW723749	<i>Valsa sordida</i>	MK994101.1	1042	97.39%	1042	98%	0
54	JAN	HEBEI G SDA	MW723750	<i>Ectophoma multirostrata</i>	MG840682.1	1627	97.13%	1173	98%	0
55	JAN	HEBEI G SDA	MW723751	<i>Phoma multirostrata</i>	JX966636.1	1688	97.36%	1216	99%	0
56	JAN	HEBEI G SDA	MW723752	<i>Cladosporium cladosporioides</i>	KY114882.1	929	98.85%	929	100%	0
57	JAN	HEBEI G SDA	MW723753	<i>Cladosporium cladosporioides</i>	KY114882.1	822	95.22%	822	100%	0

58	JAN	HEBEI G SDA	MW723754	<i>Cladosporium</i> sp.	HQ671188.1	817	95.17%	817	99%	0
				<i>Cladosporium cladosporioides</i>	KY114882.1	813	95.16%	813	99%	0
59	JAN	HEBEI G SDA	MW723755	<i>Alternaria alternata</i>	MT646481.1	933	96.15%	933	99%	0
60	JAN	HEBEI G SDA	MW723756	<i>Cladosporium cladosporioides</i>	KY114882.1	821	95.04%	821	99%	0
61	JAN	HEBEI G SDA	MW723757	<i>Ectophoma multirostrata</i>	MG840682.1	1664	97.09%	1212	100%	0
62	JAN	HEPING B MEA	MW723758	<i>Cladosporium xanthochromaticum</i>	MF473319.1	981	97.72%	981	97%	0
63	JAN	HEPING B MEA	MW723759	<i>Didymella</i> sp.	MG198901.1	2433	98.29%	1428	100%	0
64	JAN	HEPING B MEA	MW723760	<i>Naganishia globosa</i>	MH809978.1	1426	97.07%	1426	100%	0
65	JAN	HEPING G MEA	MW723761	<i>Valsa sordida</i>	MK994101.1	961	99.81%	961	100%	0
66	JAN	HEPING G MEA	MW723762	<i>Alternaria alternata</i>	MN615420.1	867	100.00%	867	100%	0
67	JAN	HEPING G MEA	MW723763	<i>Cladosporium cladosporioides</i>	MK127535.1	935	98.85%	935	99%	0
68	JAN	HEPING B SDA	MW723764	<i>Didymella</i> sp.	MG198901.1	2343	96.88%	1448	99%	0
69	JAN	HEPING B SDA	MW723765	<i>Coniothyrium aleuritis</i>	KP749188.1	2346	96.83%	1411	100%	0
70	JAN	HEPING B SDA	MW723766	<i>Alternaria tenuissima</i>	MN907695.1	1024	98.62%	1024	99%	0
71	JAN	HEPING B SDA	MW723767	<i>Cladosporium cladosporioides</i>	MK127535.1	846	95.65%	846	99%	0
72	JAN	HEPING G SDA	MW723768	<i>Valsa sordida</i>	KF293840.1	1035	100.00%	1035	100%	0
73	JAN	HEPING G SDA	MW723769	<i>Aureobasidium pullulans</i>	KR912253.1	1507	98.24%	1090	100%	0
74	JAN	HEPING G SDA	MW723770	<i>Alternaria tenuissima</i>	MT497426.1	1547	98.25%	1101	100%	0
1	FEB	NANKAI G SDA	MW723771	<i>Epicoccum sorghinum</i>	MF061768.1	905	99.40%	905	98%	0
2	FEB	NANKAI G SDA	MW723772	<i>Alternaria</i> sp.	MN856342.1	970	99.62%	970	98%	0
				<i>Alternaria alternata</i>	MN856355.1	968	99.62%	968	97%	0
3	FEB	NANKAI G SDA	MW723773	<i>Alternaria alternata</i>	JQ080319.1	3209	96.14%	1631	96%	0

4	FEB	NANKAI G SDA	MW723774	<i>Alternaria alternata</i>	JQ080319.1	3390	98.51%	1773	99%	0
5	FEB	NANKAI G SDA	MW723775	<i>Alternaria alternata</i>	KJ728679.1	3076	99.14%	1679	100%	0
6	FEB	NANKAI G SDA	MW723776	<i>Cladosporium cladosporioides</i>	MH341182.1	911	98.46%	911	98%	0
7	FEB	NANKAI G MEA	MW723777	<i>Cladosporium cladosporioides</i>	MG731215.1	2418	98.54%	2418	99%	0
8	FEB	NANKAI B MEA	MW723778	<i>Alternaria alternata</i>	JQ080319.1	3098	95.25%	1574	98%	0
9	FEB	NANKAI B MEA	MW723779	Uncultured soil fungus	HM037664.1	749	96.68%	749	46%	0
				<i>Cladosporium uredinicola</i>	FJ025160.1	743	95.31%	743	48%	0
10	FEB	NANKAI B MEA	MW723780	<i>Alternaria alternata</i>	JQ080319.1	3491	99.40%	1823	100%	0
11	FEB	NANKAI B MEA	MW723781	<i>Didymella pedaeiae</i>	MH923258.1	1603	98.48%	1158	99%	0
12	FEB	NANKAI B SDA	MW723782	<i>Didymella pedaeiae</i>	MH923258.1	1616	98.48%	1160	99%	0
13	FEB	NANKAI B SDA	MW723783	<i>Colletotrichum gloeosporioides</i>	HQ874970.1	802	98.89%	802	99%	0
14	FEB	NANKAI B SDA	MW723784	<i>Alternaria alternata</i>	JQ080319.1	3098	95.25%	1456	98%	0
15	FEB	NANKAI G MEA	MW723785	<i>Alternaria longipes</i>	MN589608.1	885	98.04%	885	99%	0
16	FEB	NANKAI G MEA	MW723786	<i>Alternaria alternata</i>	MN907695.1	845	98.74%	845	51%	0
17	FEB	NANKAI G MEA	MW723787	<i>Alternaria tenuissima</i>	MF952613.1	1638	95.83%	1120	71%	0
18	FEB	NANKAI G MEA	MW723788	<i>Alternaria tenuissima</i>	MF952613.1	1586	95.01%	1098	70%	0
19	FEB	NANKAI B SDA	MW723789	<i>Curvularia</i> sp.	JN207338.1	712	98.99%	712	99%	0
				<i>Curvularia tuberculata</i>	MT229266.1	678	97.49%	678	99%	0
20	FEB	NANKAI B SDA	MW723790	<i>Colletotrichum gloeosporioides</i>	HQ874970.1	784	98.22%	784	99%	0
21	FEB	NANKAI B SDA	MW723791	<i>Didymella macrostoma</i>	MN944409.1	756	100.00%	756	80%	0
22	FEB	NANKAI B SDA	MW723792	<i>Alternaria alternata</i>	JQ080319.1	3367	98.59%	1760	99%	0
23	FEB	NANKAI B SDA	MW723793	<i>Colletotrichum gloeosporioides</i>	HQ874970.1	776	97.99%	776	99%	0

24	FEB	NANKAI B SDA	MW723794	<i>Naganishia albida</i>	MG551274.1	2838	99.28%	2002	99%	0
25	FEB	HEXI G SDA	MW723795	<i>Daldinia eschscholtzii</i>	MK928969.1	950	98.51%	950	99%	0
26	FEB	HEXI G SDA	MW723796	<i>Alternaria alternata</i>	MH521178.1	1044	98.64%	1044	99%	0
27	FEB	HEXI G SDA	MW723797	<i>Coreomyces</i> sp.	MG602602.1	1982	99.28%	1982	99%	0
28	FEB	HEXI G SDA	MW723798	<i>Alternaria alternata</i>	KJ728679.1	1699	98.93%	1002	99%	0
29	FEB	HEXI G SDA	MW723799	<i>Didymella macrostoma</i>	MN944409.1	623	99.42%	623	67%	3.00E-174
30	FEB	HEXI G SDA	MW723800	<i>Alternaria alternata</i>	MH201516.1	717	97.18%	717	77%	0
31	FEB	HEXI G SDA	MW723801	<i>Rhodotorula dairenensis</i>	MN920648.1	939	98.86%	939	99%	0
32	FEB	HEXI G SDA	MW723802	<i>Alternaria tenuissima</i>	KU937315.1	2138	99.20%	1587	100%	0
33	FEB	HEXI G MEA	MW723803	<i>Alternaria tenuissima</i>	MT497426.1	1645	98.10%	1092	100%	0
34	FEB	HEXI G MEA	MW723804	<i>Alternaria tenuissima</i>	KU937315.1	1368	95.05%	972	91%	0
35	FEB	HEXI G MEA	MW723805	<i>Alternaria tenuissima</i>	MT497426.1	1643	99.05%	1109	100%	0
36	FEB	HEXI G MEA	MW723806	<i>Alternaria tenuissima</i>	KU937315.1	1828	99.29%	1266	100%	0
37	FEB	HEXI G MEA	MW723807	<i>Naganishia albida</i>	MG551287.1	1959	99.29%	1266	100%	0
38	FEB	HEXI G MEA	MW723808	<i>Alternaria alternata</i>	MH521178.1	1051	98.98%	1051	99%	0
39	FEB	HEXI B MEA	MW723809	<i>Fusarium verticillioides</i>	MK790042.1	1619	96.29%	1086	77%	0
40	FEB	HEXI B MEA	MW723810	<i>Fusarium verticillioides</i>	MK790042.1	1797	99.41%	1227	99%	0
41	FEB	HEXI B MEA	MW723811	<i>Alternaria alternata</i>	MK659949.1	1061	98.82%	1061	99%	0
42	FEB	HEXI B MEA	MW723812	<i>Fusarium verticillioides</i>	MK790042.1	1739	98.52%	1192	99%	0
43	FEB	HEXI B MEA	MW723813	<i>Alternaria tenuissima</i>	MF952613.1	1499	95.92%	1072	66%	0
44	FEB	HEXI G MEA	MW723814	<i>Alternaria tenuissima</i>	MT497426.1	1739	98.57%	1216	100%	0
45	FEB	HEXI G MEA	MW723815	<i>Cladosporium anthropophilum</i>	MF472926.1	1526	99.41%	1526	99%	0

46	FEB	HEXI G MEA	MW723816	<i>Cladosporium anthropophilum</i>	MK965098.1	979	98.73%	979	99%	0
47	FEB	HEXI G MEA	MW723817	<i>Colletotrichum gloeosporioides</i>	HQ874970.1	806	99.33%	806	99%	0
48	FEB	HEXI G MEA	MW723818	<i>Alternaria alternata</i>	MT556702.1	933	98.31%	933	99%	0
49	FEB	HEXI G MEA	MW723819	<i>Cladosporium perangustum</i>	KF706664.1	898	98.25%	898	97%	0
50	FEB	HEPING G SDA	MW723820	<i>Alternaria alternata</i>	JQ676196.1	920	97.93%	920	99%	0
51	FEB	HEPING G SDA	MW723821	<i>Alternaria alternata</i>	MT000437.1	952	98.87%	952	100%	0
52	FEB	HEPING G SDA	MW723822	<i>Alternaria alternata</i>	MT000437.1	933	98.31%	933	99%	0
53	FEB	HEPING G SDA	MW723823	<i>Cladosporium</i> sp.	MK111512.1	894	98.43%	894	99%	0
				<i>Cladosporium cladosporioides</i>	MK111520.1	893	98.43%	893	99%	0
54	FEB	HEPING G SDA	MW723824	<i>Cladosporium</i> sp.	MK111548.1	902	98.82%	902	96%	0
				<i>Cladosporium cladosporioides</i>	MK111520.1	902	98.82%	902	96%	0
55	FEB	HEPING G SDA	MW723825	<i>Alternaria alternata</i>	MT000437.1	955	98.97%	955	99%	0
56	FEB	HEPING G SDA	MW723826	<i>Alternaria tenuissima</i>	MH374277.1	1554	98.96%	1554	99%	0
57	FEB	HEPING G SDA	MW723827	<i>Alternaria</i> sp.	MN856392.1	793	100.00%	793	77%	0
				<i>Alternaria tenuissima</i>	MN822661.1	793	100.00%	793	77%	0
58	FEB	HEPING B SDA	MW723828	<i>Alternaria tenuissima</i>	MF952613.1	1817	96.43%	1153	86%	0
59	FEB	HEPING B SDA	MW723829	<i>Alternaria tenuissima</i>	MF952613.1	1734	98.71%	1214	99%	0
60	FEB	HEPING B SDA	MW723830	<i>Fusarium verticillioides</i>	MK790042.1	1706	98.34%	1166	97%	0
61	FEB	HEPING B MEA	MW723831	<i>Alternaria alternata</i>	MK907718.1	931	98.13%	931	99%	0
62	FEB	HEPING B MEA	MW723832	<i>Alternaria tenuissima</i>	KU937315.1	2103	98.18%	1530	99%	0
63	FEB	HEPING B MEA	MW723833	<i>Cladosporium cladosporioides</i>	MK111520.1	887	98.04%	887	99%	0
64	FEB	HEPING B MEA	MW723834	<i>Didymella glomerata</i>	MG664756.1	1101	98.87%	1101	99%	0

65	FEB	HEPING B MEA	MW723835	<i>Papiliotrema flavescens</i>	MH931267.1	1334	98.17%	1334	99%	0
66	FEB	HEPING B MEA	MW723836	<i>Alternaria tenuissima</i>	MT497426.1	1728	98.43%	1210	100%	0
67	FEB	HEPING B MEA	MW723837	<i>Alternaria tenuissima</i>	MF952613.1	1701	96.24%	1129	86%	0
68	FEB	HEBEI B SDA	MW723838	<i>Cladosporium cladosporioides</i>	MG731215.1	2442	99.04%	2442	99%	0
69	FEB	HEBEI B SDA	MW723839	<i>Fusarium verticillioides</i>	MK790042.1	1636	96.59%	1098	77%	0
70	FEB	HEXI G SDA	MW723840	<i>Cladosporium cladosporioides</i>	MG731215.1	1367	98.70%	1367	100%	0
71	FEB	NANKAI G SDA	MW723841	<i>Phoma multirostrata</i>	JX966636.1	1715	98.57%	1232	99%	0
72	FEB	NANKAI G SDA	MW723842	<i>Cladosporium cladosporioides</i>	KC329631.1	935	99.42%	935	98%	0
73	FEB	HEBEI B MEA	MW723843	<i>Cladosporium</i> sp.	KY621330.1	2626	98.66%	2111	99%	0
				<i>Cladosporium cladosporioides</i>	MG731215.1	1394	95.27%	1029	69%	0
74	FEB	HEBEI B MEA	MW723844	<i>Alternaria tenuissima</i>	MF952613.1	1749	98.43%	1208	99%	0
75	FEB	HEBEI G MEA	MW723845	<i>Papiliotrema flavescens</i>	MH931267.1	1349	98.44%	1349	99%	0
76	FEB	HEBEI B SDA	MW723846	<i>Alternaria tenuissima</i>	KU937315.1	2114	98.40%	1541	99%	0
77	FEB	HEBEI G MEA	MW723847	<i>Alternaria</i> sp.	MT000599.1	933	99.23%	933	96%	0
				<i>Alternaria alternata</i>	MT000437.1	933	99.23%	933	96%	0
78	FEB	HEBEI B MEA	MW723848	<i>Alternaria tenuissima</i>	MH374277.1	1565	99.31%	1565	99%	0
79	FEB	HEBEI G SDA	MW723849	<i>Fusarium verticillioides</i>	MK790042.1	1610	95.99%	1075	77%	0
80	FEB	HEBEI B SDA	MW723850	<i>Cladosporium asperulatum</i>	MN202774.1	900	100.00%	900	100%	0
81	FEB	HEPING G SDA	MW723851	<i>Cladosporium cladosporioides</i>	MK111520.1	874	97.65%	874	99%	0
82	FEB	HEPING G SDA	MW723852	<i>Cladosporium cladosporioides</i>	MF077224.1	955	98.00%	955	99%	0
83	FEB	HEPING G MEA	MW723853	<i>Fusarium verticillioides</i>	KY495190.1	2043	98.78%	2043	99%	0
84	FEB	HEPING G SDA	MW723854	<i>Cladosporium cladosporioides</i>	KX664320.1	1947	98.72%	1947	99%	0

85	FEB	HEBEI B SDA	MW723855	<i>Cladosporium cladosporioides</i>	KC329631.1	867	97.09%	867	97%	0
86	FEB	NANKAI B MEA	MW723856	<i>Alternaria tenuissima</i>	MN907695.1	1005	98.26%	1005	99%	0
87	FEB	HEPING G MEA	MW723857	<i>Cladosporium cladosporioides</i>	MF072677.1	887	97.67%	887	99%	0
88	FEB	HEBEI G SDA	MW723858	<i>Cladosporium cladosporioides</i>	MG976288.1	857	97.42%	857	99%	0
89	FEB	HEPING G MEA	MW723859	Uncultured fungus	MT236874.1	2809	95.55%	1410	85%	0
				<i>Cladosporium cladosporioides</i>	MG731215.1	1629	95.92%	987	84%	0
90	FEB	HEXI G SDA	MW723860	<i>Ectophoma multirostrata</i>	MG840682.1	1839	100.00%	1327	100%	0
91	FEB	HEXI G MEA	MW723861	<i>Fusarium verticillioides</i>	MK790049.1	1819	98.56%	1227	99%	0
92	FEB	NANKAI G SDA	MW723862	<i>Aspergillus flavus</i>	MH447084.1	928	96.76%	928	99%	0
93	FEB	HEBEI G MEA	MW723863	<i>Cladosporium cladosporioides</i>	KC329631.1	846	96.48%	846	99%	0
94	FEB	HEXI G SDA	MW723864	<i>Alternaria alternata</i>	MF422133.1	1079	98.37%	1079	100%	0
95	FEB	HEXI G SDA	MW723865	<i>Cladosporium</i> sp.	MN275871.1	865	97.25%	865	99%	0
				<i>Cladosporium cladosporioides</i>	MF475952.1	865	97.25%	865	99%	0
96	FEB	HEXI B MEA	MW723866	<i>Papiliotrema flavescens</i>	MH023208.1	867	97.81%	867	99%	0
97	FEB	HEXI B MEA	MW723867	<i>Cladosporium cladosporioides</i>	MF475952.1	996	98.58%	996	98%	0
98	FEB	HEXI G SDA	MW723868	<i>Cladosporium cladosporioides</i>	MN704703.1	885	97.49%	885	99%	0
99	FEB	NANKAI B MEA	MW723869	<i>Cladosporium cladosporioides</i>	MH884119.1	837	96.45%	837	99%	0
100	FEB	HEPING B SDA	MW723870	<i>Alternaria alternata</i>	MF422130.1	1226	99.13%	1026	100%	0
101	FEB	HEXI G MEA	MW723871	<i>Fusarium verticillioides</i>	MK790042.1	1734	98.52%	1192	99%	0
102	FEB	HEXI G MEA	MW723872	<i>Didymella glomerata</i>	KT827261.1	828	98.93%	828	99%	0
103	FEB	HEXI G MEA	MW723873	<i>Erythrobasidium hasegawianum</i>	AF444522.1	1068	98.20%	1068	99%	0
104	FEB	NANKAI B SDA	MW723874	<i>Cladosporium cladosporioides</i>	MF687304.1	922	97.58%	922	98%	0

105	FEB	HEXI B MEA	MW723875	<i>Fusarium verticillioides</i>	MK790049.1	1821	98.26%	1208	99%	0
106	FEB	HEXI G SDA	MW723876	<i>Fusarium verticillioides</i>	MK790051.1	1588	98.15%	1131	99%	0
107	FEB	HEXI G SDA	MW723877	<i>Cladosporium tenuissimum</i>	MK183813.1	905	97.90%	905	100%	0
108	FEB	HEPING B MEA	MW723878	<i>Fusarium verticillioides</i>	MK790042.1	1614	96.75%	1127	99%	0
109	FEB	HEPING B MEA	MW723879	<i>Fusarium verticillioides</i>	MK790049.1	1780	98.41%	1216	99%	0
110	FEB	HEXI G SDA	MW723880	<i>Didymella pedaeiae</i>	MH923258.1	1671	100.00%	1216	100%	0
111	FEB	HEXI G SDA	MW723881	<i>Cladosporium tenuissimum</i>	MK183813.1	854	96.17%	854	99%	0
112	FEB	HEXI G SDA	MW723882	<i>Papiliotrema flavescens</i>	MH931267.1	1338	98.30%	1338	98%	0
113	FEB	HEBEI G MEA	MW723883	<i>Cladosporium cladosporioides</i>	MH341182.1	880	97.12%	880	99%	0
114	FEB	HEXI B SDA	MW723884	<i>Cladosporium cladosporioides</i>	MH341182.1	891	97.50%	891	99%	0
115	FEB	HEBEI G SDA	MW723885	<i>Cladosporium cladosporioides</i>	MH341182.1	926	98.66%	926	99%	0
116	FEB	HEBEI G SDA	MW723886	<i>Kazachstania humilis</i>	MN913450.1	1092	98.86%	1092	99%	0
117	FEB	HEBEI B SDA	MW723887	<i>Cladosporium cladosporioides</i>	KR084328.1	848	96.67%	848	99%	0
118	FEB	HEXI B SDA	MW723888	<i>Cladosporium tenuissimum</i>	MT072081.1	941	99.61%	941	97%	0
119	FEB	HEXI G MEA	MW723889	<i>Fusarium verticillioides</i>	MK790051.1	1357	98.61%	1018	98%	0
120	FEB	HEBEI G SDA	MW723890	<i>Lasiodiplodia theobromae</i>	JX282407.1	1395	96.77%	1395	100%	0
121	FEB	HEBEI G SDA	MW723891	<i>Didymella pedaeiae</i>	MH923258.1	1634	99.09%	1179	99%	0
122	FEB	HEBEI G SDA	MW723892	<i>Bipolaris zeae</i>	MT138920.1	658	100.00%	658	100%	0
123	FEB	NANKAI B SDA	MW723893	<i>Fusarium oxysporum</i>	MN709614.1	1896	98.79%	1325	99%	0
124	FEB	NANKAI G SDA	MW723894	<i>Cladosporium anthropophilum</i>	MK111487.1	922	99.03%	922	97%	0
125	FEB	NANKAI G MEA	MW723895	<i>Naganishia albida</i>	KY238183.1	1050	98.33%	1050	99%	0
126	FEB	NANKAI G MEA	MW723896	<i>Naganishia albida</i>	KY238185.1	1062	98.66%	1062	99%	0

127	FEB	NANKAI G MEA	MW723897	<i>Naganishia albida</i>	KY238183.1	1044	98.32%	1044	99%	0
128	FEB	HEPING B SDA	MW723898	<i>Naganishia albida</i>	KY238185.1	1075	99.33%	1075	98%	0
129	FEB	HEPING B MEA	MW723899	<i>Naganishia albida</i>	KY238185.1	1075	99.49%	1075	98%	0
130	FEB	HEPING G MEA	MW723900	<i>Papiliotrema flavescens</i>	MH931267.1	1375	99.08%	1375	99%	0
131	FEB	NANKAI G MEA	MW723901	<i>Naganishia albida</i>	KY238170.1	1070	99.32%	1070	98%	0
132	FEB	NANKAI G MEA	MW723902	<i>Naganishia albida</i>	KY238170.1	1051	98.33%	1051	99%	0
133	FEB	NANKAI B MEA	MW723903	<i>Naganishia albida</i>	KY238161.1	1044	98.32%	1044	99%	0
134	FEB	NANKAI B MEA	MW723904	<i>Naganishia albida</i>	KY238157.1	1064	98.99%	1064	99%	0
135	FEB	HEBEI B MEA	MW723905	<i>Symmetrospora symmetrica</i>	NR_158993.1	1686	99.28%	1003	96%	0
136	FEB	HEXI G MEA	MW723906	<i>Papiliotrema flavescens</i>	KY104461.1	917	98.10%	917	99%	0
137	FEB	HEPING B MEA	MW723907	<i>Aureobasidium pullulans</i>	MH854941.1	1029	98.79%	1029	99%	0
138	FEB	HEXI B SDA	MW723908	<i>Alternaria tenuissima</i>	MF952613.1	1695	96.85%	1162	99%	0
139	FEB	HEBEI G SDA	MW723909	<i>Aspergillus niger</i>	MN420840.1	1509	99.16%	1509	99%	0
140	FEB	NANKAI G SDA	MW723910	<i>Naganishia albida</i>	KY238185.1	1072	98.84%	1072	100%	0
141	FEB	HEPING B MEA	MW723911	<i>Cladosporium cladosporioides</i>	LC515098.1	1919	98.53%	1919	99%	0
142	FEB	HEPING B SDA	MW723912	<i>Aureobasidium pullulans</i>	MH854941.1	869	100.00%	869	99%	0
143	FEB	HEXI G SDA	MW723913	<i>Alternaria alternata</i>	MF422130.1	1228	99.30%	1027	100%	0
144	FEB	HEPING B SDA	MW723914	<i>Naganishia albida</i>	KY238161.1	1055	98.66%	1055	99%	0
145	FEB	HEXI B SDA	MW723915	<i>Cladosporium</i> sp.	MK367557.1	913	98.09%	913	99%	0
146	FEB	HEBEI G MEA	MW723916	<i>Cladosporium cladosporioides</i>	HQ671181.1	920	99.03%	920	99%	0
147	FEB	HEXI G MEA	MW723917	<i>Cladosporium cladosporioides</i>	LC515096.1	1905	98.43%	1905	99%	0
148	FEB	HEXI B MEA	MW723918	<i>Fusarium verticillioides</i>	MK790051.1	1270	96.84%	953	98%	0

149	FEB	HEXI B SDA	MW723919	<i>Cladosporium perangustum</i>	KF706664.1	931	99.42%	931	97%	0
150	FEB	NANKAI G SDA	MW723920	<i>Cladosporium cladosporioides</i>	MK813966.1	929	97.26%	929	99%	0
151	FEB	NANKAI G SDA	MW723921	<i>Alternaria</i> sp.	KP027305.1	2869	95.27%	1550	99%	0
				<i>Alternaria alternata</i>	JQ080319.1	2983	94.57%	1528	97%	0
152	FEB	NANKAI G SDA	MW723922	<i>Cladosporium cladosporioides</i>	KX664389.1	1934	98.80%	1934	99%	0
153	FEB	NANKAI B SDA	MW723923	<i>Didymella pedaeiae</i>	MH923258.1	1503	96.35%	1079	99%	0
154	FEB	NANKAI G MEA	MW723924	<i>Cladosporium cladosporioides</i>	LC515096.1	1912	98.70%	1912	100%	0
155	FEB	HEXI G MEA	MW723925	<i>Pleosporales</i> sp.	MH473902.1	1551	98.84%	918	96%	0
				<i>Periconia epilithographicola</i>	NR_157477.1	1479	96.77%	870	97%	0
156	FEB	HEPING B MEA	MW723926	<i>Paraconiothyrium hawaiiense</i>	EU715661.1	1614	98.60%	1003	89%	0
157	FEB	HEXI G SDA	MW723927	<i>Microsphaeropsis olivacea</i>	MN944412.1	854	100.00%	854	100%	0
158	FEB	HEPING B MEA	MW723928	<i>Erythrobasidium hasegawianum</i>	AF444522.1	998	99.82%	998	100%	0
159	FEB	NANKAI G MEA	MW723929	<i>Naganishia albida</i>	KY238161.1	1011	97.47%	1011	98%	0
160	FEB	NANKAI G SDA	MW723930	<i>Naganishia albida</i>	KY238183.1	1055	98.66%	1055	99%	0
161	FEB	HEBEI G MEA	MW723931	<i>Symmetrospora</i> sp.	FJ613120.1	924	98.66%	924	90%	0
				<i>Symmetrospora foliicola</i>	KY105571.1	915	96.26%	915	96%	0
162	FEB	NANKAI G MEA	MW723932	<i>Naganishia albida</i>	KY238170.1	1016	97.32%	1016	99%	0
163	FEB	NANKAI G MEA	MW723933	<i>Naganishia albida</i>	KY238149.1	1013	97.32%	1013	99%	0
164	FEB	HEBEI B MEA	MW723934	<i>Papiliotrema flavescens</i>	MH931267.1	1393	99.35%	1393	99%	0
165	FEB	HEXI G MEA	MW723935	<i>Papiliotrema flavescens</i>	MH931267.1	1327	97.91%	1327	99%	0
1	MAR	NANKAI B MEA	MW723936	<i>Naganishia globosa</i>	MH809978.1	1110	99.81%	966	96%	0
2	MAR	NANKAI B MEA	MW723937	<i>Naganishia globosa</i>	MH809978.1	950	99.62%	950	100%	0

3	MAR	NANKAI B MEA	MW723938	<i>Didymella pedeiae</i>	MH923258.1	1365	96.67%	987	100%	0
4	MAR	NANKAI B MEA	MW723939	<i>Naganishia liquefaciens</i>	MT303813.1	933	100.00%	933	99%	0
5	MAR	NANKAI B MEA	MW723940	<i>Naganishia globosa</i>	MH809978.1	1053	99.65%	1053	100%	0
6	MAR	NANKAI B MEA	MW723941	<i>Alternaria alternata</i>	HQ343446.1	939	100.00%	939	99%	0
7	MAR	NANKAI B MEA	MW723942	<i>Didymella pedeiae</i>	MH923258.1	1462	95.26%	1018	100%	0
8	MAR	NANKAI B MEA	MW723943	<i>Naganishia globosa</i>	MH809978.1	989	100.00%	989	100%	0
9	MAR	NANKAI B MEA	MW723944	<i>Naganishia globosa</i>	KY238197.1	1026	99.47%	1026	100%	0
10	MAR	NANKAI B MEA	MW723945	<i>Aureobasidium pullulans</i>	MK772063.1	909	99.80%	909	100%	0
11	MAR	NANKAI B MEA	MW723946	<i>Naganishia globosa</i>	KY238197.1	1136	99.29%	1009	95%	0
12	MAR	NANKAI B MEA	MW723947	Fungal endophyte isolate	KP335566.1	881	100.00%	881	99%	0
				<i>Aureobasidium pullulans</i>	MG025879.1	881	100.00%	881	99%	0
13	MAR	NANKAI B MEA	MW723948	<i>Naganishia globosa</i>	MH809978.1	1042	99.82%	1042	85%	0
14	MAR	NANKAI B MEA	MW723949	<i>Didymella macrostoma</i>	MN944409.1	730	99.02%	730	100%	0
15	MAR	NANKAI B MEA	MW723950	<i>Didymella pedeiae</i>	MH923258.1	1562	97.87%	1134	99%	0
16	MAR	NANKAI B MEA	MW723951	Fungal sp.	KT375712.1	939	100.00%	939	100%	0
				<i>Paraconiothyrium hawaiiense</i>	EU715661.1	939	100.00%	939	100%	0
17	MAR	NANKAI B MEA	MW723952	<i>Didymella pedeiae</i>	MH923258.1	1370	96.53%	990	100%	0
18	MAR	NANKAI B MEA	MW723953	<i>Didymellaceae</i> sp.	MT453292.1	830	100.00%	830	100%	0
19	MAR	NANKAI B MEA	MW723954	<i>Naganishia globosa</i>	MH809978.1	924	99.22%	924	100%	0
20	MAR	NANKAI B MEA	MW723955	<i>Naganishia globosa</i>	MH809978.1	924	99.22%	924	100%	0
21	MAR	NANKAI B MEA	MW723956	<i>Phoma medicaginis</i>	KT192426.1	846	99.78%	846	99%	0
22	MAR	NANKAI B MEA	MW723957	<i>Naganishia globosa</i>	MH809978.1	1237	100.00%	1027	96%	0

23	MAR	NANKAI B MEA	MW723958	<i>Naganishia albida</i>	MG551287.1	1703	97.25%	1096	100%	0
24	MAR	NANKAI B MEA	MW723959	<i>Phoma</i> sp.	KY088083.1	839	99.78%	839	100%	0
25	MAR	NANKAI B MEA	MW723960	<i>Phoma</i> sp.	KY088083.1	845	100.00%	845	99%	0
26	MAR	NANKAI B MEA	MW723961	<i>Naganishia globosa</i>	MH809978.1	891	100.00%	891	84%	0
27	MAR	NANKAI B MEA	MW723962	<i>Naganishia globosa</i>	MH809978.1	1434	97.28%	1434	100%	0
28	MAR	NANKAI B MEA	MW723963	<i>Alternaria tenuissima</i>	MF952613.1	1398	97.33%	1020	100%	0
29	MAR	NANKAI B MEA	MW723964	<i>Paraconiothyrium hawaiiense</i>	EU715661.1	2006	98.09%	2006	99%	0
30	MAR	NANKAI B MEA	MW723965	<i>Naganishia globosa</i>	MH809978.1	998	100.00%	998	99%	0
31	MAR	NANKAI B MEA	MW723966	<i>Naganishia globosa</i>	MH809978.1	963	99.81%	963	99%	0
32	MAR	NANKAI B MEA	MW723967	<i>Cryptococcus saitoi</i>	JQ993394.1	1113	99.45%	983	98%	0
				<i>Naganishia globosa</i>	MH809978.1	1110	99.26%	979	99%	0
33	MAR	NANKAI B MEA	MW723968	<i>Phoma macrostoma</i>	KF293857.1	837	100.00%	837	99%	0
34	MAR	NANKAI B SDA	MW723969	<i>Didymella pedaeiae</i>	MH923258.1	1311	97.82%	944	100%	0
35	MAR	NANKAI B SDA	MW723970	<i>Naganishia globosa</i>	MH809978.1	911	99.21%	911	99%	0
36	MAR	NANKAI B SDA	MW723971	Fungal sp.	KT375712.1	990	100.00%	990	100%	0
				<i>Paraconiothyrium hawaiiense</i>	EU715661.1	990	100.00%	990	100%	0
37	MAR	NANKAI B SDA	MW723972	<i>Naganishia globosa</i>	MH809978.1	905	97.54%	905	99%	0
38	MAR	NANKAI B SDA	MW723973	<i>Naganishia globosa</i>	MH809978.1	846	98.74%	846	100%	0
39	MAR	NANKAI B SDA	MW723974	<i>Naganishia albida</i>	MF062213.1	1061	98.03%	1061	98%	0
40	MAR	NANKAI B SDA	MW723975	Uncultured <i>Phaeosphaeria</i>	KC785561.1	815	100.00%	815	99%	0
				<i>Phaeosphaeria</i> sp.	HQ631018.1	815	100.00%	815	99%	0
41	MAR	NANKAI B SDA	MW723976	<i>Naganishia globosa</i>	MH809978.1	891	96.98%	891	99%	0

42	MAR	NANKAI B SDA	MW723977	Uncultured fungus clone	KX516304.1	1129	97.16%	1129	99%	0
				<i>Naganishia globosa</i>	MH809978.1	1123	97.16%	1129	99%	0
43	MAR	NANKAI B SDA	MW723978	Uncultured fungus clone	KX516304.1	1096	96.26%	1096	99%	0
				<i>Naganishia globosa</i>	MH809978.1	1090	96.26%	1096	99%	0
44	MAR	NANKAI B SDA	MW723979	<i>Naganishia albida</i>	MF062213.1	961	99.81%	961	100%	0
45	MAR	NANKAI B SDA	MW723980	<i>Naganishia liquefaciens</i>	MT303813.1	966	100.00%	966	100%	0
46	MAR	NANKAI B SDA	MW723981	<i>Aureobasidium proteae</i>	MN341232.1	948	96.20%	948	100%	0
47	MAR	NANKAI B SDA	MW723982	<i>Naganishia albida</i>	MG551278.1	1027	97.98%	1027	100%	0
48	MAR	NANKAI B SDA	MW723983	<i>Naganishia albida</i>	MK782383.1	1027	98.95%	1027	99%	0
49	MAR	NANKAI B SDA	MW723984	<i>Alternaria alternata</i>	MT453271.1	1378	98.96%	1378	99%	0
50	MAR	NANKAI B SDA	MW723985	Uncultured fungus	MF156091.1	874	98.98%	874	89%	0
				<i>Alternaria alternata</i>	KU258751.1	872	98.78%	872	90%	0
51	MAR	NANKAI B SDA	MW723986	<i>Didymella bryoniae</i>	EU030365.1	880	100.00%	880	99%	0
52	MAR	NANKAI B SDA	MW723987	<i>Alternaria</i> sp.	MT447542.1	928	100.00%	928	100%	0
				<i>Alternaria alternata</i>	MT446185.1	928	100.00%	928	100%	0
53	MAR	NANKAI B SDA	MW723988	<i>Alternaria alternata</i>	MK690431.1	881	100.00%	881	100%	0
54	MAR	NANKAI B SDA	MW723989	<i>Alternaria</i> sp.	MT447542.1	869	100.00%	869	100%	0
				<i>Alternaria alternata</i>	MT446185.1	869	100.00%	869	100%	0
55	MAR	NANKAI B SDA	MW723990	<i>Alternaria alternata</i>	MT453271.1	785	100.00%	785	100%	0
56	MAR	NANKAI B SDA	MW723991	<i>Dothiorella viticola</i>	KY385661.1	913	100.00%	913	98%	0
57	MAR	NANKAI B SDA	MW723992	<i>Paraconiothyrium hawaiiense</i>	EU715661.1	1971	97.49%	1971	99%	0
58	MAR	NANKAI B SDA	MW723993	<i>Aplosporella javeedii</i>	MH974687.1	874	97.65%	874	99%	0

59	MAR	NANKAI B SDA	MW723994	<i>Didymellaceae</i> sp.	MT453292.1	832	100.00%	832	99%	0
60	MAR	NANKAI B SDA	MW723995	<i>Dothiorella viticola</i>	KY385661.1	931	97.27%	931	99%	0
61	MAR	NANKAI B SDA	MW723996	<i>Microsphaeropsis olivacea</i>	MN944412.1	841	100.00%	841	99%	0
62	MAR	NANKAI G SDA	MW723997	<i>Alternaria alternata</i>	MT333205.1	942	100.00%	942	100%	0
63	MAR	NANKAI G MEA	MW723998	<i>Cladosporium anthropophilum</i>	MK965098.1	898	100.00%	898	100%	0
64	MAR	NANKAI G MEA	MW723999	<i>Alternaria alternata</i>	MK605765.1	898	100.00%	898	100%	0
65	MAR	NANKAI G MEA	MW724000	<i>Coniothyrium aleuritis</i>	MK070113.1	743	100.00%	743	98%	0
66	MAR	NANKAI G MEA	MW724001	<i>Fusarium tricinctum</i>	MT180474.1	843	100.00%	843	100%	0
67	MAR	NANKAI G MEA	MW724002	<i>Alternaria alternata</i>	MT446185.1	1053	98.33%	1053	100%	0
68	MAR	NANKAI G SDA	MW724003	<i>Naganishia albida</i>	MK782383.1	961	96.86%	961	99%	0
69	MAR	NANKAI G SDA	MW724004	<i>Naganishia albida</i>	MK782383.1	987	97.57%	987	100%	0
70	MAR	HEXI B SDA	MW724005	<i>Dothideomycetes</i> sp.	MH474085.1	979	100.00%	979	99%	0
71	MAR	HEXI B SDA	MW724006	<i>Alternaria alternata</i>	MT453271.1	920	100.00%	920	100%	0
72	MAR	HEXI B SDA	MW724007	<i>Talaromyces funiculosus</i>	MH590622.1	929	100.00%	929	100%	0
73	MAR	HEXI B SDA	MW724008	<i>Talaromyces funiculosus</i>	MH590622.1	970	96.74%	970	100%	0
74	MAR	HEXI B SDA	MW724009	<i>Phoma</i> sp.	KY088083.1	774	95.46%	774	100%	0
75	MAR	HEXI B SDA	MW724010	<i>Cladosporium gossypiicola</i>	MK956909.1	870	97.10%	870	99%	0
76	MAR	HEXI B SDA	MW724011	<i>Phoma</i> sp.	KY088083.1	791	96.08%	791	100%	0
77	MAR	HEXI B MEA	MW724012	<i>Naganishia globosa</i>	MH809978.1	1450	97.63%	1450	100%	0
78	MAR	HEXI B MEA	MW724013	<i>Alternaria alternata</i>	MK690432.1	883	100.00%	883	100%	0
79	MAR	HEXI B MEA	MW724014	<i>Alternaria arborescens</i>	MT420628.1	915	100.00%	915	100%	0
80	MAR	HEXI B MEA	MW724015	<i>Alternaria alternata</i>	KX622113.1	881	100.00%	881	100%	0

81	MAR	HEXI G SDA	MW724016	<i>Alternaria alternata</i>	MT447475.1	928	100.00%	928	99%	0
82	MAR	HEPING B MEA	MW724017	<i>Fusarium equiseti</i>	MK621018.1	922	97.24%	922	99%	0
83	MAR	HEPING B MEA	MW724018	<i>Cladosporium</i> sp.	MK356562.1	887	100.00%	887	100%	0
				<i>Cladosporium cladosporioides</i>	KX639814.1	887	100.00%	887	100%	0
84	MAR	HEPING B MEA	MW724019	<i>Cladosporium anthropophilum</i>	MN857898.1	902	100.00%	902	99%	0
85	MAR	HEPING B MEA	MW724020	<i>Cladosporium gossypiicola</i>	MK956909.1	863	100.00%	863	100%	0
86	MAR	HEPING B MEA	MW724021	<i>Naganishia uzbekistanensis</i>	MG720264.1	1185	99.81%	963	92%	0
87	MAR	HEPING B MEA	MW724022	<i>Alternaria alternata</i>	MT453271.1	756	100.00%	756	100%	0
88	MAR	HEPING B MEA	MW724023	<i>Alternaria alternata</i>	MT453271.1	900	100.00%	900	100%	0
89	MAR	HEPING B SDA	MW724024	<i>Naganishia albida</i>	MG551274.1	1485	96.21%	1029	99%	0
90	MAR	HEPING B SDA	MW724025	<i>Phoma medicaginis</i>	KT192426.1	907	100.00%	907	99%	0
91	MAR	HEPING B SDA	MW724026	<i>Naganishia adeliensis</i>	KY073545.1	979	97.72%	979	100%	0
92	MAR	HEBEI B SDA	MW724027	<i>Naganishia adeliensis</i>	KY073545.1	996	98.24%	996	100%	0
93	MAR	HEBEI B SDA	MW724028	<i>Naganishia globosa</i>	MH809978.1	1445	97.51%	1445	100%	0
94	MAR	HEBEI B SDA	MW724029	<i>Phoma medicaginis</i>	KT192426.1	817	100.00%	817	99%	0
95	MAR	HEBEI B SDA	MW724030	<i>Papiliotrema laurentii</i>	MK268144.1	989	98.06%	989	100%	0
96	MAR	HEBEI B SDA	MW724031	<i>Aureobasidium pullulans</i>	MK794596.1	872	100.00%	872	99%	0
97	MAR	HEBEI B SDA	MW724032	<i>Dothiorella gregaria</i>	EU520055.1	905	100.00%	905	99%	0
98	MAR	HEBEI B SDA	MW724033	<i>Papiliotrema laurentii</i>	MK268144.1	905	99.80%	905	99%	0
99	MAR	HEBEI B SDA	MW724034	<i>Naganishia globosa</i>	KY238197.1	955	100.00%	955	100%	0
100	MAR	HEBEI B SDA	MW724035	<i>Naganishia globosa</i>	MH809978.1	959	99.43%	959	99%	0
101	MAR	HEBEI B SDA	MW724036	<i>Cryptococcus saitoi</i>	JQ993394.1	1003	98.42%	1003	99%	0

				<i>Naganishia friedmannii</i>	MK782318.1	1000	98.25%	1000	100%	0
102	MAR	HEBEI B SDA	MW724037	<i>Naganishia globosa</i>	MH809978.1	979	99.81%	979	99%	0
103	MAR	HEBEI B SDA	MW724038	<i>Fusarium equiseti</i>	MK621018.1	957	98.18%	957	100%	0
104	MAR	HEBEI B SDA	MW724039	<i>Naganishia albida</i>	MG551288.1	1040	100.00%	1040	99%	0
105	MAR	HEBEI B SDA	MW724040	<i>Phoma sojicola</i>	MH857118.1	850	98.77%	850	99%	0
106	MAR	HEBEI B SDA	MW724041	<i>Phoma</i> sp.	KP067267.1	869	99.58%	869	98%	0
				<i>Stagonosporopsis cucurbitacearum</i>	MT312750.1	867	99.58%	867	98%	0
107	MAR	HEBEI B SDA	MW724042	<i>Cytospora chrysosperma</i>	KC880155.1	929	100.00%	929	100%	0
108	MAR	HEBEI B SDA	MW724043	<i>Alternaria</i> sp.	MT447542.1	867	100.00%	867	100%	0
				<i>Alternaria alternata</i>	MT446185.1	867	100.00%	867	100%	0
109	MAR	HEBEI B SDA	MW724044	<i>Alternaria</i> sp.	KU377193.1	749	98.36%	749	84%	0
				<i>Alternaria tenuissima</i>	KF996903.1	749	98.36%	749	84%	0
110	MAR	HEBEI B SDA	MW724045	<i>Microsphaeropsis olivacea</i>	MN944412.1	797	100.00%	797	100%	0
111	MAR	HEBEI B SDA	MW724046	<i>Cladosporium anthropophilum</i>	MN857898.1	913	97.05%	913	100%	0
112	MAR	HEBEI B SDA	MW724047	<i>Aureobasidium namibiae</i>	MK782292.1	795	99.77%	795	100%	0
113	MAR	HEBEI B SDA	MW724048	<i>Colletotrichum gloeosporioides</i>	HQ874970.1	71.3	100.00%	71.3	76%	0.00E+00
114	MAR	HEBEI B MEA	MW724049	<i>Naganishia globosa</i>	MH809978.1	953	99.81%	953	99%	0
115	MAR	HEBEI B MEA	MW724050	<i>Cryptococcus saitoi</i>	JQ993394.1	974	100.00%	974	99%	0
				<i>Naganishia globosa</i>	MH809978.1	966	99.81%	966	99%	0
116	MAR	HEBEI B MEA	MW724051	<i>Cladosporium anthropophilum</i>	MN857898.1	894	100.00%	894	100%	0
117	MAR	HEBEI B MEA	MW724052	<i>Aureobasidium namibiae</i>	MK782292.1	806	100.00%	806	99%	0
118	MAR	HEBEI B MEA	MW724053	<i>Aureobasidium proteae</i>	MN341232.1	828	100.00%	828	99%	0

119	MAR	HEBEI B MEA	MW724054	<i>Alternaria alternata</i>	MN889427.1	913	100.00%	913	100%	0
120	MAR	HEBEI B MEA	MW724055	<i>Microsphaeropsis olivacea</i>	MN944412.1	804	100.00%	804	100%	0
121	MAR	HEBEI B MEA	MW724056	<i>Naganishia globosa</i>	MH809978.1	1037	99.82%	1037	100%	0
122	MAR	HEBEI B MEA	MW724057	<i>Cladosporium anthropophilum</i>	MN857898.1	828	100.00%	828	100%	0
123	MAR	HEBEI G SDA	MW724058	<i>Allophoma labilis</i>	KT013227.1	1454	98.71%	961	100%	0
124	MAR	HEBEI G SDA	MW724059	<i>Aureobasidium proteae</i>	MN341232.1	992	97.59%	992	99%	0
125	MAR	HEBEI G SDA	MW724060	<i>Rhodotorula mucilaginosa</i>	MN945314.1	955	100.00%	955	100%	0
126	MAR	HEBEI G SDA	MW724061	<i>Alternaria alternata</i>	KU258751.1	909	100.00%	909	100%	0
127	MAR	HEBEI G SDA	MW724062	<i>Alternaria</i> sp.	MT447542.1	782	100.00%	782	99%	0
				<i>Alternaria alternata</i>	MT446185.1	782	100.00%	782	99%	0
128	MAR	HEBEI G SDA	MW724063	<i>Paraconiothyrium archidendri</i>	NR_155630.1	1000	96.38%	1000	100%	0
129	MAR	HEBEI G SDA	MW724064	<i>Alternaria alternata</i>	MN889427.1	957	100.00%	957	100%	0
130	MAR	HEBEI G SDA	MW724065	<i>Talaromyces funiculosus</i>	CP036229.1	4571	98.86%	1249	100%	0
131	MAR	HEBEI G SDA	MW724066	<i>Alternaria porri</i>	MH014943.1	952	100.00%	952	100%	0
132	MAR	HEBEI G SDA	MW724067	<i>Alternaria</i> sp.	MK640595.1	946	100.00%	946	100%	0
				<i>Alternaria</i> sp.	MN856392.1	946	100.00%	946	100%	0
133	MAR	HEBEI G SDA	MW724068	Fungal sp.	KT375712.1	979	99.08%	979	100%	0
				<i>Paraconiothyrium hawaiiense</i>	EU715661.1	977	99.08%	977	99%	0
134	MAR	HEBEI G SDA	MW724069	<i>Talaromyces marneffe</i>	CP015870.1	1086	97.78%	1086	100%	0
135	MAR	HEBEI G SDA	MW724070	<i>Talaromyces marneffe</i>	CP045655.1	1184	98.23%	1184	100%	0
136	MAR	HEBEI G SDA	MW724071	<i>Cladosporium ramotenellum</i>	MT441591.1	800	100.00%	800	100%	0
137	MAR	HEBEI G SDA	MW724072	<i>Dioszegia zsoitii</i>	EU266502.1	896	98.62%	896	98%	0

138	MAR	HEBEI G SDA	MW724073	<i>Talaromyces marneffei</i>	CP045655.1	2223	98.10%	1829	100%	0
139	MAR	HEBEI G SDA	MW724074	<i>Alternaria alternata</i>	KU258667.1	939	100.00%	939	100%	0
140	MAR	HEBEI G MEA	MW724075	<i>Phoma herbarum</i>	KJ767079.1	804	100.00%	804	99%	0
141	MAR	HEBEI G MEA	MW724076	<i>Phoma</i> sp.	KF177690.1	880	99.79%	880	99%	0
				<i>Phoma herbarum</i>	KJ767079.1	878	99.79%	878	99%	0
142	MAR	HEBEI G MEA	MW724077	<i>Fusarium equiseti</i>	MH999443.1	1081	98.22%	1081	100%	0
143	MAR	HEBEI G MEA	MW724078	<i>Alternaria</i> sp.	MT447542.1	795	99.77%	795	100%	0
				<i>Alternaria alternata</i>	MT446185.1	795	99.77%	795	100%	0
144	MAR	HEBEI G MEA	MW724079	<i>Alternaria</i> sp.	MT447542.1	704	99.77%	795	100%	0
				<i>Alternaria alternata</i>	MT446185.1	704	99.77%	795	100%	0
145	MAR	HEBEI G MEA	MW724080	<i>Aureobasidium pullulans</i>	MK794595.1	952	97.99%	952	100%	0
146	MAR	HEBEI G MEA	MW724081	<i>Alternaria tenuissima</i>	MF952613.1	1608	97.59%	1142	99%	0
147	MAR	HEBEI G MEA	MW724082	<i>Alternaria</i> sp.	MT447542.1	854	100.00%	854	100%	0
				<i>Alternaria alternata</i>	MT446185.1	854	100.00%	854	100%	0
148	MAR	HEBEI G MEA	MW724083	<i>Rhodotorula mucilaginosa</i>	MN945314.1	1925	100.00%	961	99%	0
149	MAR	HEBEI G MEA	MW724084	<i>Alternaria tenuissima</i>	MT497426.1	1771	97.72%	1201	100%	0
150	MAR	HEBEI G MEA	MW724085	<i>Aureobasidium pullulans</i>	MK794596.1	966	98.54%	966	100%	0
151	MAR	HEBEI G MEA	MW724086	<i>Talaromyces marneffei</i>	CP015870.1	4033	98.86%	1873	100%	0
152	MAR	HEBEI G MEA	MW724087	<i>Cladosporium</i> sp.	MN905843.1	911	96.71%	911	100%	0
				<i>Cladosporium tenuissimum</i>	MH712245.1	911	96.71%	911	100%	0
153	MAR	HEBEI G MEA	MW724088	<i>Alternaria alternata</i>	MK690431.1	911	100.00%	911	100%	0
154	MAR	HEBEI G MEA	MW724089	<i>Fusarium equiseti</i>	MH999443.1	1075	98.06%	1075	100%	0

155	MAR	HEBEI G MEA	MW724090	<i>Alternaria tenuissima</i>	MN907695.1	952	100.00%	952	99%	0
156	MAR	HEBEI G MEA	MW724091	<i>Alternaria alternata</i>	MT447475.1	983	100.00%	983	100%	0
157	MAR	HEBEI G MEA	MW724092	<i>Cladosporium</i> sp.	MT000472.1	861	100.00%	861	99%	0
158	MAR	HEBEI G MEA	MW724093	<i>Naganishia albida</i>	MG551274.1	2742	98.29%	1947	100%	0
159	MAR	HEBEI G MEA	MW724094	<i>Candida auris</i>	LR595924.1	675	97.04%	675	97%	0
160	MAR	HEBEI G MEA	MW724095	<i>Paraconiothyrium hawaiiense</i>	EU715661.1	963	100.00%	963	100%	0
161	MAR	HEPING G MEA	MW724096	<i>Cladosporium herbarum</i>	MK919499.1	912	100.00%	912	100%	0
162	MAR	HEPING G MEA	MW724097	<i>Vishniacozyma</i> sp.	MN450786.1	1851	97.43%	1851	95%	0
163	MAR	HEPING G MEA	MW724098	<i>Vishniacozyma tephrensensis</i>	KX078413.1	866	100.00%	866	100%	0
164	MAR	HEPING G MEA	MW724099	<i>Dothideomycetes</i> sp.	MH474085.1	900	99.40%	900	100%	0
165	MAR	HEPING G MEA	MW724100	<i>Alternaria tenuissima</i>	MH374277.1	1605	100.00%	1605	100%	0
166	MAR	HEPING G MEA	MW724101	<i>Alternaria tenuissima</i>	MT497426.1	1703	96.58%	1155	100%	0
167	MAR	HEPING G MEA	MW724102	<i>Naganishia uzbekistanensis</i>	MG720264.1	983	97.73%	983	99%	0
168	MAR	HEPING G MEA	MW724103	<i>Naganishia albida</i>	MG551274.1	2718	98.11%	1932	100%	0
169	MAR	HEXI G MEA	MW724104	<i>Naganishia albida</i>	MG551274.1	1299	97.17%	1043	99%	0
170	MAR	HEXI G MEA	MW724105	<i>Naganishia uzbekistanensis</i>	MN759033.1	1040	100.00%	1040	100%	0
171	MAR	HEXI G MEA	MW724106	<i>Naganishia randhawae</i>	MK782282.1	1034	97.28%	931	96%	0
172	MAR	HEXI G MEA	MW724107	<i>Cryptococcus saitoi</i>	JQ993394.1	1251	99.83%	1136	98%	0
173	MAR	HEXI G MEA	MW724108	<i>Paraconiothyrium hawaiiense</i>	EU715661.1	2012	98.02%	2012	100%	0
174	MAR	HEXI G MEA	MW724109	<i>Fusarium equiseti</i>	MK621018.1	976	98.90%	976	99%	0
175	MAR	HEPING G SDA	MW724110	<i>Fusarium equiseti</i>	MH999443.1	1016	96.59%	1016	99%	0
176	MAR	HEPING G SDA	MW724111	<i>Fusarium equiseti</i>	KU939062.1	935	97.79%	935	99%	0

177	MAR	HEPING G SDA	MW724112	<i>Alternaria tenuissima</i>	MH374277.1	1419	97.65%	1031	97%	0
178	MAR	HEPING G SDA	MW724113	<i>Nothophoma</i> sp.	MN737832.1	1105	99.58%	938	90%	0
				<i>Dothiorella</i> sp.	KX219605.1	1097	99.58%	938	90%	0
179	MAR	HEPING B MEA	MW724114	<i>Alternaria</i> sp.	MT447542.1	934	100.00%	934	100%	0
				<i>Alternaria alternata</i>	MT446185.1	934	100.00%	934	100%	0
180	MAR	HEPING B MEA	MW724115	<i>Fusarium equiseti</i>	KT192259.1	915	96.89%	915	100%	0
181	MAR	HEPING B MEA	MW724116	<i>Naganishia albida</i>	MN759029.1	1005	98.09%	1005	98%	0
182	MAR	HEPING B MEA	MW724117	<i>Dothiorella gregaria</i>	KT192425.1	1029	99.77%	854	97%	0
183	MAR	HEPING B MEA	MW724118	Uncultured fungus	MT236706.1	2383	98.34%	1203	100%	0
				<i>Cladosporium herbarum</i>	MN486550.1	1251	99.59%	944	100%	0
184	MAR	HEPING B MEA	MW724119	<i>Pleosporales</i> sp.	MK753054.1	767	95.98%	767	99%	0
				<i>Herpotrichia striatispora</i>	MK564736.1	730	94.51%	730	99%	0
185	MAR	HEPING B SDA	MW724120	<i>Pleosporales</i> sp.	MK753054.1	747	96.88%	747	100%	0
				<i>Herpotrichia striatispora</i>	MK564736.1	737	96.43%	737	100%	0
186	MAR	HEPING B SDA	MW724121	<i>Valsa sordida</i>	MK994101.1	1029	100.00%	1029	100%	0
187	MAR	HEPING B SDA	MW724122	<i>Cladosporium</i> sp.	MN486549.1	973	100.00%	973	99%	0
				Fungal sp.	MG265951.1	973	99.80%	973	100%	0
188	MAR	HEPING B SDA	MW724123	<i>Cladosporium</i> sp.	MN486549.1	944	100.00%	944	100%	0
				<i>Damon diadema</i>	MK629946.1	944	100.00%	944	100%	0
189	MAR	HEPING B SDA	MW724124	<i>Dioszegia zsoitii</i>	EU266502.1	813	100.00%	813	100%	0
190	MAR	HEPING B SDA	MW724125	Fungal sp.	KJ867412.1	942	100.00%	942	97%	0
				<i>Aureobasidium</i> sp.	MK782382.1	938	100.00%	938	97%	0

191	MAR	HEBEI B MEA	MW724126	Uncultured fungus	MT236706.1	1786	99.60%	904	100%	0
				<i>Cladosporium herbarum</i>	MK919499.1	902	99.80%	902	99%	0
192	MAR	HEBEI B MEA	MW724127	<i>Alternaria tenuissima</i>	MT497426.1	1651	96.71%	1144	100%	0
193	MAR	HEBEI B MEA	MW724128	<i>Epicoccum nigrum</i>	MN089646.1	920	96.90%	920	100%	0
194	MAR	HEBEI B MEA	MW724129	<i>Cladosporium herbarum</i>	MK919499.1	961	97.84%	961	100%	0
195	MAR	HEBEI B MEA	MW724130	<i>Talaromyces marneffe</i>	CP015873.1	10451	99.29%	1013	100%	0
196	MAR	HEBEI B MEA	MW724131	<i>Cladosporium herbarum</i>	MK919499.1	963	98.36%	963	100%	0
197	MAR	HEBEI B MEA	MW724132	<i>Rhodotorula mucilaginosa</i>	MN945314.1	1038	98.47%	1038	99%	0
198	MAR	HEBEI B MEA	MW724133	<i>Thelebolus microsporus</i>	MG586989.1	972	98.37%	972	100%	0
199	MAR	HEBEI B MEA	MW724134	<i>Cladosporium herbarum</i>	MK919499.1	983	98.56%	983	100%	0
200	MAR	HEBEI B MEA	MW724135	<i>Alternaria alternata</i>	MF422130.1	1302	98.09%	1092	100%	0
201	MAR	HEBEI B MEA	MW724136	<i>Microsphaeropsis olivacea</i>	MN944412.1	931	97.44%	931	99%	0
202	MAR	HEBEI B MEA	MW724137	<i>Thelebolus microsporus</i>	MG586989.1	904	99.80%	904	100%	0
203	MAR	HEBEI B MEA	MW724138	<i>Aureobasidium pullulans</i>	MK794596.1	928	97.26%	928	100%	0
204	MAR	HEBEI B MEA	MW724139	<i>Epicoccum nigrum</i>	MN089646.1	953	98.00%	953	100%	0
205	MAR	HEBEI B MEA	MW724140	<i>Epicoccum nigrum</i>	MN089646.1	852	99.77%	852	99%	0
206	MAR	HEBEI B MEA	MW724141	<i>Alternaria alternata</i>	MG722823.1	1196	98.48%	971	99%	0
207	MAR	HEBEI B MEA	MW724142	<i>Epicoccum nigrum</i>	MK983497.1	948	98.16%	948	100%	0
208	MAR	HEXI G MEA	MW724143	<i>Talaromyces marneffe</i>	CP015870.1	590	97.40%	590	100%	2.00E-164
209	MAR	HEXI G MEA	MW724144	<i>Cladosporium anthropophilum</i>	MK965098.1	976	98.55%	976	99%	0
210	MAR	HEXI G MEA	MW724145	<i>Rhodotorula mucilaginosa</i>	MN945314.1	1024	97.81%	1024	100%	0
211	MAR	HEXI B MEA	MW724146	<i>Naganishia albida</i>	KY238156.1	1059	98.50%	1059	99%	0

212	MAR	HEXI B MEA	MW724147	<i>Acrodontium crateriforme</i>	MK794315.1	892	100.00%	892	99%	0
213	MAR	HEBEI B SDA	MW724148	<i>Naganishia albida</i>	KY238152.1	1044	98.16%	1044	100%	0
214	MAR	HEBEI B SDA	MW724149	Fungal sp.	KT375697.1	1025	99.38%	932	99%	0
				<i>Nothophoma</i> sp.	MN737833.1	1023	99.38%	930	99%	0
215	MAR	HEBEI B SDA	MW724150	<i>Microsphaeropsis olivacea</i>	MN944412.1	922	99.79%	922	98%	0
216	MAR	HEBEI B SDA	MW724151	<i>Phoma macrostoma</i>	KF293857.1	870	100.00%	870	100%	0
217	MAR	HEBEI B SDA	MW724152	<i>Phoma macrostoma</i>	KF293857.1	938	100.00%	938	100%	0
218	MAR	HEBEI B SDA	MW724153	<i>Epicoccum nigrum</i>	MK983497.1	931	97.61%	931	100%	0
219	MAR	HEBEI B SDA	MW724154	<i>Epicoccum nigrum</i>	MK983497.1	963	98.54%	963	100%	0
220	MAR	HEBEI B SDA	MW724155	<i>Talaromyces funiculosus</i>	MH590622.1	1007	97.93%	1007	99%	0
221	MAR	HEBEI B SDA	MW724156	<i>Naganishia albida</i>	KY238183.1	1050	98.33%	1050	99%	0
222	MAR	HEBEI B SDA	MW724157	<i>Naganishia albida</i>	KY238183.1	1005	96.99%	1005	99%	0
223	MAR	NANKAI B MEA	MW724158	<i>Paraconiothyrium brasiliense</i>	MK247586.1	997	99.80%	997	99%	0
224	MAR	NANKAI B MEA	MW724159	<i>Dothiorella viticola</i>	KY385661.1	929	96.94%	929	99%	0
225	MAR	NANKAI B MEA	MW724160	<i>Neosetophoma samarorum</i>	MK247705.1	928	100.00%	928	99%	0
226	MAR	NANKAI B MEA	MW724161	<i>Dothiorella viticola</i>	KY385661.1	959	100.00%	959	100%	0
227	MAR	NANKAI B MEA	MW724162	<i>Phoma macrostoma</i>	KF293857.1	926	99.79%	926	100%	0
228	MAR	NANKAI B SDA	MW724163	<i>Aplosporella javeedii</i>	MH974687.1	942	97.75%	942	99%	0
229	MAR	NANKAI B SDA	MW724164	<i>Phoma</i> sp.	MN944537.1	809	100.00%	809	100%	0
				<i>Didymella glomerata</i>	MT000453.1	807	100.00%	807	99%	0
230	MAR	NANKAI B SDA	MW724165	<i>Alternaria</i> sp.	MT447542.1	957	100.00%	957	100%	0
				<i>Alternaria alternata</i>	MT446185.1	957	100.00%	957	100%	0

231	MAR	NANKAI B SDA	MW724166	<i>Aplosporella javeedii</i>	MH974687.1	878	97.61%	878	99%	0
232	MAR	NANKAI B SDA	MW724167	<i>Aplosporella javeedii</i>	MH974687.1	934	97.74%	934	99%	0
233	MAR	NANKAI B SDA	MW724168	<i>Spencermartinsia</i> sp.	KY290227.1	961	100.00%	961	98%	0
				<i>Dothiorella viticola</i>	KY385661.1	961	99.80%	961	99%	0
234	MAR	NANKAI B SDA	MW724169	<i>Alternaria</i> sp.	MT447542.1	1011	100.00%	1011	100%	0
				<i>Alternaria alternata</i>	MT446184.1	1011	100.00%	1011	100%	0
235	MAR	NANKAI B SDA	MW724170	<i>Dothiorella viticola</i>	KY385661.1	959	100.00%	959	100%	0
236	MAR	NANKAI B SDA	MW724171	<i>Dothiorella viticola</i>	KY385661.1	890	100.00%	890	100%	0
237	MAR	NANKAI B SDA	MW724172	<i>Kazachstania humilis</i>	MN913450.1	1134	100.00%	1134	100%	0
238	MAR	NANKAI B SDA	MW724173	<i>Aplosporella javeedii</i>	MH974687.1	902	97.67%	902	99%	0
239	MAR	NANKAI B SDA	MW724174	<i>Aplosporella javeedii</i>	MH974687.1	950	97.77%	950	99%	0
240	MAR	NANKAI B SDA	MW724175	<i>Alternaria</i> sp.	MT447542.1	954	100.00%	954	100%	0
				<i>Alternaria alternata</i>	MT446185.1	954	100.00%	954	100%	0
241	MAR	NANKAI B SDA	MW724176	<i>Coniothyrium pyrinum</i>	MT126619.1	942	100.00%	942	100%	0

BLAST search closest matches of fungal internal transcribed spacer DNA sequences amplified from Tianjin air borne fungi. In sample codes, sampling district name (Nankai, Hexi, Heping, Hebei), site (G = Green, B = Busy), and isolation medium (MEA = Malt Extract Agar, SDA = Sabouraud Dextrose Agar) are indicated. Sample GenBank accession codes, accession codes for the closest GenBank matches, sequence identity, and overlap of each match are reported.

Supplementary Table S4: Isolated airborne fungal genera and number of strains

Fungal Genera	December	January	February	March	No. of Isolates	Percentage (%)
<i>Alternaria</i>	16	12	48	47	123	21.96
<i>Cladosporium</i>	23	19	42	19	103	18.39
<i>Naganishia</i>	1	4	17	57	79	14.11
<i>Fusarium</i>	4	3	16	10	33	5.89
<i>Didymella</i>	4	3	10	10	27	4.82
<i>Phoma</i>	5	3	2	13	23	4.11
<i>Epicoccum</i>	7	2	1	7	17	3.04
<i>Aureobasidium</i>	0	1	2	11	14	2.50
<i>Valsa</i>	5	7	0	1	13	2.32
<i>Aspergillus</i>	3	5	2	0	10	1.79
<i>Dothiorella</i>	1	1	0	8	10	1.79
<i>Paraconiothyrium</i>	0	1	1	8	10	1.79
<i>Talaromyces</i>	0	0	0	10	10	1.79
<i>Papiliotrema</i>	0	0	8	1	9	1.61
<i>Microsphaeropsis</i>	0	2	1	5	8	1.43
<i>Aplosporella</i>	0	0	0	6	6	1.07
<i>Colletotrichum</i>	1	0	4	0	5	0.89
<i>Filobasidium</i>	2	3	0	0	5	0.89
<i>Nothophoma</i>	0	1	0	4	5	0.89
<i>Rhodotorula</i>	0	0	0	4	4	0.71
<i>Sistotrema</i>	4	0	0	0	4	0.71
<i>Coniothyrium</i>	0	1	0	2	3	0.54
<i>Ectophoma</i>	1	2	0	0	3	0.54
<i>Erythrobasidium</i>	1	0	2	0	3	0.54
<i>Curvularia</i>	0	1	1	0	2	0.36
<i>Didymellaceae</i>	0	0	0	2	2	0.36
<i>Dioszegia</i>	0	0	0	2	2	0.36
<i>Dothideomyces</i>	0	0	0	2	2	0.36
<i>Kazachstania</i>	0	0	1	1	2	0.36
<i>Rhizopus</i>	0	2	0	0	2	0.36
<i>Symmetrospora</i>	0	0	2	0	2	0.36
<i>Vishniacozyma</i>	0	0	0	2	2	0.36

<i>Acrodontium</i>	0	0	0	1	1	0.18
<i>Allophoma</i>	0	0	0	1	1	0.18
<i>Bipolaris</i>	0	0	1	0	1	0.18
<i>Coreomyces</i>	0	0	1	0	1	0.18
<i>Cytospora</i>	0	0	0	1	1	0.18
<i>Daldinia</i>	0	0	1	0	1	0.18
<i>Herpotrichia</i>	0	0	0	1	1	0.18
<i>Lasiodiplodia</i>	0	0	1	0	1	0.18
<i>Massarina</i>	0	1	0	0	1	0.18
<i>Neosetophoma</i>	0	0	0	1	1	0.18
<i>Periconia</i>	0	0	1	0	1	0.18
<i>Phaeosphaeria</i>	0	0	0	1	1	0.18
<i>Candida</i>	0	0	0	1	1	0.18
<i>Purpureocillium</i>	1	0	0	0	1	0.18
<i>Stagonosporopsis</i>	0	0	0	1	1	0.18
<i>Thelebolus</i>	0	0	0	1	1	0.18
<i>Trichoderma</i>	1	0	0	0	1	0.18

Supplementary Table S5: Isolated air borne fungal species and number of strains

Fungi	Dec	Jan	Feb	March	Total	Percentage (%)
<i>Acrodontium crateriforme</i>	0	0	0	1	1	0.18
<i>Allophoma labilis</i>	0	0	0	1	1	0.18
<i>Alternaria alternata</i>	7	9	25	34	75	13.3
<i>Alternaria arborescens</i>	0	0	0	1	1	0.18
<i>Alternaria brassicicola</i>	0	1	0	0	1	0.18
<i>Alternaria eichhorniae</i>	1	0	0	0	1	0.18
<i>Alternaria longipes</i>	0	0	1	0	1	0.18
<i>Alternaria porri</i>	0	0	0	1	1	0.18
<i>Alternaria</i> sp.	0	0	0	1	1	0.18
<i>Alternaria tenuissima</i>	0	2	22	10	34	6.07
<i>Aplosporella javeedii</i>	0	0	0	6	6	1.07
<i>Aspergillus flavus</i>	0	1	1	0	2	0.36
<i>Aspergillus niger</i>	0	0	1	0	1	0.18
<i>Aspergillus nomius</i>	1	1	0	0	2	0.36
<i>Aspergillus ochraceus</i>	1	0	0	0	1	0.18
<i>Aspergillus ostianus</i>	0	3	0	0	3	0.54
<i>Aspergillus pseudoglaucus</i>	1	0	0	0	1	0.18
<i>Aureobasidium namibiae</i>	0	0	0	2	2	0.36
<i>Aureobasidium proteae</i>	0	0	0	3	3	0.54
<i>Aureobasidium pullulans</i>	0	1	2	5	8	1.43
<i>Aureobasidium</i> sp.	0	0	0	1	1	0.18
<i>Bipolaris zeae</i>	0	0	1	0	1	0.18
<i>Candida auris</i>	0	0	0	1	1	0.18
<i>Cladosporium anthropophilum</i>	1	0	3	6	10	1.79

<i>Cladosporium asperulatum</i>	1	2	1	0	4	0.71
<i>Cladosporium cladosporioides</i>	10	13	30	1	54	9.64
<i>Cladosporium gossypiicola</i>	0	0	0	1	1	0.18
<i>Cladosporium herbarum</i>	0	0	0	6	6	1.07
<i>Cladosporium perangustum</i>	2	0	2	0	4	0.36
<i>Cladosporium pseudocladosporioides</i>	4	0	0	0	4	0.71
<i>Cladosporium ramotenellum</i>	0	1	0	1	2	0.36
<i>Cladosporium</i> sp.	2	1	1	3	7	1.25
<i>Cladosporium subuliforme</i>	1	1	0	0	2	0.36
<i>Cladosporium tenuissimum</i>	8	0	4	1	13	2.32
<i>Cladosporium uredinicola</i>	0	0	1	0	1	0.18
<i>Cladosporium xanthochromaticum</i>	2	1	0	0	3	0.54
<i>Colletotrichum gloeosporioides</i>	1	0	4	1	6	1.07
<i>Coniothyrium aleuritis</i>	0	1	0	1	2	0.36
<i>Coniothyrium pyrinum</i>	0	0	0	1	1	0.18
<i>Coreomyces</i> sp.	0	0	1	0	1	0.18
<i>Curvularia</i> sp.	0	0	1	0	1	0.18
<i>Curvularia tsudae</i>	0	1	0	0	1	0.18
<i>Cytospora chrysosperma</i>	0	0	0	1	1	0.18
<i>Daldinia eschscholtzii</i>	0	0	1	0	1	0.18
<i>Didymella bryoniae</i>	0	0	0	1	1	0.18
<i>Didymella glomerata</i>	0	0	2	0	2	0.36
<i>Didymella macrostoma</i>	0	0	2	1	3	0.54
<i>Didymella pedaeiae</i>	2	1	6	6	15	2.68
<i>Didymella</i> sp.	0	2	0	0	2	0.36
<i>Didymella subherbarum</i>	2	0	0	0	2	0.36
<i>Didymellaceae</i> sp.	0	0	0	2	2	0.36
<i>Dioszegia zsolzii</i>	0	0	0	2	2	0.36

<i>Dothideomycetes</i> sp.	0	0	0	2	2	0.36
<i>Dothiorella gregaria</i>	1	0	0	2	3	0.54
<i>Dothiorella viticola</i>	0	1	0	6	7	1.25
<i>Ectophoma multirostrata</i>	1	2	0	0	3	0.54
<i>Epicoccum laticollum</i>	2	0	0	0	2	0.36
<i>Epicoccum nigrum</i>	0	1	0	7	8	1.43
<i>Epicoccum sorghinum</i>	5	1	1	0	7	1.25
<i>Erythrobasidium hasegawianum</i>	1	0	2	0	3	0.54
<i>Filobasidium chernovii</i>	1	0	0	0	1	0.18
<i>Filobasidium magnum</i>	1	2	0	0	3	0.54
<i>Filobasidium uniguttulatum</i>	0	1	0	0	1	0.18
<i>Fusarium</i> cf. <i>incarnatum-equiseti</i>	2	0	0	0	2	0.36
<i>Fusarium chlamydosporum</i>	1	0	0	0	1	0.18
<i>Fusarium equiseti</i>	1	3	0	9	13	2.32
<i>Fusarium oxysporum</i>	0	0	1	0	1	0.18
<i>Fusarium tricinctum</i>	0	0	0	1	1	0.18
<i>Fusarium verticillioides</i>	0	0	15	0	15	2.68
<i>Herpotrichia striatispora</i>	0	0	0	1	1	0.18
<i>Kazachstania humilis</i>	0	0	1	1	2	0.36
<i>Lasiodiplodia theobromae</i>	0	0	1	0	1	0.18
<i>Massarina igniaria</i>	0	1	0	0	1	0.18
<i>Microsphaeropsis olivacea</i>	0	2	1	5	8	1.43
<i>Naganishia adeliensis</i>	0	0	0	1	1	0.18
<i>Naganishia albida</i>	0	1	17	18	36	6.43
<i>Naganishia friedmannii</i>	0	0	0	1	1	0.18
<i>Naganishia globosa</i>	1	3	0	30	34	6.07
<i>Naganishia liquefaciens</i>	0	0	0	2	2	0.34
<i>Naganishia randhawae</i>	0	0	0	1	1	0.18

<i>Naganishia uzbekistanensis</i>	0	0	0	3	3	0.54
<i>Neosetophoma samarorum</i>	0	0	0	1	1	0.18
<i>Nothophoma quercina</i>	0	1	0	0	1	0.18
<i>Nothophoma</i> sp.	0	0	0	4	4	0.71
<i>Papiliotrema flavescens</i>	0	0	8	0	8	1.43
<i>Papiliotrema laurentii</i>	0	0	0	2	2	0.36
<i>Paraconiothyrium archidendri</i>	0	0	0	1	1	0.18
<i>Paraconiothyrium hawaiiense</i>	0	1	1	8	10	1.79
<i>Periconia epilithographicola</i>	0	0	1	0	1	0.18
<i>Phaeosphaeria</i> sp.	0	0	0	1	1	0.18
<i>Phoma herbarum</i>	1	0	0	2	3	0.54
<i>Phoma macrostoma</i> var. <i>macrostoma</i>	0	1	0	4	5	0.89
<i>Phoma medicaginis</i>	2	0	0	3	5	0.89
<i>Phoma multirostrata</i>	1	2	2	0	5	0.89
<i>Phoma sojicola</i>	0	0	0	1	1	0.18
<i>Phoma</i> sp.	1	0	0	3	4	0.71
<i>Purpureocillium lilacinum</i>	1	0	0	0	1	0.18
<i>Rhizopus oryzae</i>	0	2	0	0	2	0.36
<i>Rhodotorula mucilaginosa</i>	0	0	0	4	4	0.71
<i>Sistotrema brinkmannii</i>	4	0	0	0	4	0.71
<i>Stagonosporopsis cucurbitacearum</i>	0	0	0	1	1	0.18
<i>Symmetrospora foliicola</i>	0	0	1	0	1	0.18
<i>Symmetrospora symmetrica</i>	0	0	1	0	1	0.18
<i>Talaromyces funiculosus</i>	0	0	0	4	4	0.71
<i>Talaromyces marneffeii</i>	0	0	0	6	6	1.07
<i>Thelebolus microsporus</i>	0	0	0	1	1	0.18
<i>Trichoderma asperellum</i>	1	0	0	0	1	0.18
<i>Valsa sordida</i>	5	7	0	1	13	2.32

<i>Vishniacozyma</i> sp.	0	0	0	1	1	0.18
<i>Vishniacozyma tephrensis</i>	0	0	0	1	1	0.18