

## Contributions to the Macromycota of Gaziantep Province

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### Abstract

*Aim of study:* The study aims to determine the macrofungal biodiversity of Gaziantep province and to contribute to the mycobiota of Turkey.

*Area of study:* The study was carried out in Gaziantep province which is located in Southeastern Anatolian Region of Turkey. The study area takes place at the transition region of Mediterranean and Irano-Turanian phytogeographic regions and falls in C6 according to Davis' grid square system.

*Material and method:* The fungal specimens were collected from different localities within the boundaries of Gaziantep province between 2009 and 2015. After they were photographed at their natural habitats, they were transferred to the fungarium and the descriptive data related to their macroscopy and microscopy were obtained. Then the samples were identified by comparing the obtained descriptive data with literature data.

*Main results:* Besides the taxa reported from the region before, 217 macrofungi species belonging to 129 genera, 63 families, 19 orders and 6 classes within Ascomycota and Basidiomycota were determined from Gaziantep.

*Research highlights:* The mycota of Turkey has not prepared yet. That is why biodiversity studies on the macromycota of Turkey is an important requirement to present the overall macrofungal diversity of the country.

**Keywords:** Biodiversity, Macrofungi, Gaziantep, Turkey

## Gaziantep Makromikotasına Katkıları

### Öz

*Çalışmanın amacı:* Bu çalışma Gaziantep'in makromantar biyoçeşitliliğini belirlemeyi ve Türkiye mikobiyotasına katkı sağlamayı amaçlamaktadır.

*Çalışma alanı:* Çalışma, Türkiye'nin Güneydoğu Anadolu Bölgesi'nde yer alan Gaziantep'te gerçekleştirilmiştir. Çalışma alanı, Akdeniz ve İran-Turan fitocoğrafik bölgelerinin geçiş bölgesinde ve Davis'in kareleme sistemine göre C6 karesi içinde yer almaktadır.

*Materyal ve yöntem:* Makromantar örnekleri 2009-2015 yılları arasında Gaziantep sınırları içinde kalan farklı lokalitelerden toplanmıştır. Doğal ortamlarında fotoğraflanan örnekler fungaryuma taşınarak makroskopi ve mikroskobilerine yönelik betimleyici data elde edilmiştir. Derlenen betimleyici data literatür verileriyle karşılaştırılarak örneklerin teşhisleri yapılmıştır.

*Temel Sonuçlar:* Bölgeden daha önce verilen taksonların dışında, Gaziantep'ten Ascomycota ve Basidiomycota bölümleri içinde yer alan 6 sınıf, 19 ordo, 63 familya ve 129 cinse ait 217 makromantar türü belirlenmiştir.

*Araştırma vurguları:* Türkiye mikotosi henüz hazırlanmamıştır. Bu nedenle, ülkenin bütüncül makromantar kompozisyonunun ortaya konulabilmesi amacıyla Türkiye makromantarları ile ilgili biyoçeşitlilik çalışmalarının yapılması önemli bir gerekliliktir.

**Anahtar kelimeler:** Biyoçeşitlilik, Makromantarlar, Gaziantep, Türkiye



## Introduction

The number of taxonomic studies on the macrofungi of Turkey has increased especially in the last three to four decades. About 2400 macromycete taxa have been presented in checklists prepared by Sesli and Denchev (2014) and Solak, Işıloğlu, Kalmış and Allı (2015). Additional contributions were also made to these lists by Kaya (2015), Demirel, Uzun, Keleş, Akçay and Acar (2017), Işık and Türkekul (2017), Kaşık, Aktaş, Alkan and Öztürk (2017), Öztürk, Pamukçu and Aktaş (2017), Türkekul and Işık (2017), Sesli (2018), Tırpan, Çöl, Şen and Allı (2018) and Şelem, Keleş, Acar and Demirel (2019). Compared to the plant diversity of Turkey and 15.000 macrofungi taxa, reported from Europe (Lukić, 2009), there is still much to be done to obtain the overall macrofungal data of Turkey.

Gaziantep is situated in Southeastern Anatolian region of Turkey and bordered by Kahramanmaraş to the north, the river Euphrates to the east, Kilis and Syria to the South and Osmaniye to the west. The area falls in Irano-Turanian phytogeographical sector within the holarctic floral kingdom and has a Mediterranean climate (Akman, 1999) with an annual average temperature of 14.9°C and annual rainfall of ~565 mm. Forest areas are characterized mainly by *Quercus* L. and planted *Pinus brutia* Ten. populations. Members of the genera *Pistacia*, *Paliurus*, *Morus*, *Crataegus*, *Amygdalus* and *Rosa* are some other representative tree populations in the region. At higher elevations, especially on Amanos mountain range, *Abies cilicica* subsp. *cilicica*, *Pinus nigra* subsp. *pallasiana*, *Fagus orientalis*, *Carpinus orientalis*, *Taxus baccata*, *Alnus glutinosa* subsp. *glutinosa*, *Corylus avellana* var. *avellana* also have specific distributions (İskender et al., 2005). Various species of *Salix*, *Populus*, *Platanus* and *Tamarix* are dominant along the river and stream banks.

Starting from 2009 some local lists and 95 new records were presented from Gaziantep province (Kaya & Uzun, 2015; Uzun, Kaya, Karacan, Kaya & Yakar, 2015; Kaya, Uzun, Karacan & Yakar, 2016; Uzun, Karacan, Yakar & Kaya, 2018a; Uzun, Yakar, Karacan & Kaya, 2018b).

The current study was based on macrofungi specimens collected from the rest of the province, and aims to determine the macrofungal biodiversity of the region and to contribute to the knowledge of the mycobiota of Turkey.

## Materials and Methods

Macrofungi samples were collected from 64 localities (Table 1) within the boundaries of Gaziantep Province between 2009 and 2015. Required field data were recorded and the specimens were photographed in their natural habitats. Necessary macroscopic and microscopic investigations were carried out in the fungarium. The specimens were identified by comparing the obtained data with Phillips (1981), Breitenbach and Kränzlin (1984-2000), Miller and Miller (1988), Bessette, Bessette and Fischer (1997), Bessette, Roody and Bessette (2007), Ellis and Ellis (1990), Ellis and Ellis (1997), Hansen and Pfister (2006), Medardi (2006) and Beug, Bessette and Bessette (2014). Fruit bodies are kept at Karamanoğlu Mehmetbey University, Science Faculty, Karaman, Turkey.

## Results

The systematics of the taxa are given in accordance with Kirk, Cannon, Minter and Stalpers (2008) and Index Fungorum (2018).

**Ascomycota** Caval.-Sm.

**Dothideomycetes** O.E. Erikss. & Winka

**Patellariales** D. Hawksw. & O.E. Erikss.

**Patellariaceae** Corda

1. *Patellaria atrata* (Hedw.) Fr.: Mixed forest, on *Quercus* sp. twigs, locality 36, 05.12.2014, K.10893.

**Leotiomyces** O.E. Erikss. & Winka

**Helotiales** Nannf.

**Dermateaceae** Fr.

2. *Mollisia cinerea* (Batsch) P. Karst.: On *Quercus* sp. branch, locality 64, 13.04.2013, K.7906.

3. *Mollisia ligni* (Desm.) P. Karst.: On *Quercus* sp. twigs, locality 37, 10.04.2015, K.11683.

4. *Mollisia melaleuca* (Fr.) Sacc.: On *Quercus* sp. twigs, locality 10, 02.05.2015, K.11868.

**Helotiaceae** Rehm

5. *Ascocoryne cylichnium* (Tul.) Korf: On *Fagus* sp. twig, locality 12, 19.10.2014, K. 10080.

6. *Cenangium ferruginosum* Fr.: On dead *Pinus* sp. bark, locality 36, 04.04.2015, K.11598.

Table 1. Macrofungi collection localities

No	Localities	Coordinates	Altitudes (m)
1	Araban, Emirhaydar	37°30' N – 37°42' E	850
2	Araban, Eskialtuntaş	37°24' N – 37°41' E	513
3	İslahiye, Alaca	36°59' N – 36°49' E	1020
4	İslahiye, Altınüzüm	36°54' N – 36°34' E	490
5	İslahiye, Çubuk	36°59' N – 36°48' E	800
6	İslahiye, Fevzipaşa	37°06' N – 36°37' E	675
7	İslahiye, Hanağzı	37°03' N – 36°36' E	535
8	İslahiye, Hasanlök	36°54' N – 36°30' E	815
9	İslahiye, Kozdere	37°06' N – 36°39' E	750
10	İslahiye, Tandır	36°57' N – 37°31' E	695
11	İslahiye, Tandır	36°58' N – 36°29' E	1750
12	İslahiye, Tandır	36°57' N – 37°29' E	1530
13	Karkamış, Gürçay	36°53' N – 38°01' E	340
14	Karkamış, Kelekli	36°55' N – 37°59' E	340
15	Karkamış, Yurtbağı	36°50' N – 38°00' E	330
16	Nizip, Gökçeli	36°54' N – 37°43' E	650
17	Nizip, Mercanlı	36°56' N – 37°46' E	493
18	Nizip, Sekili	36°58' N – 37°40' E	600
19	Nurdağı, Ataköy	37°08' N – 36°54' E	985
20	Nurdağı, Atmalı	37°07' N – 36°53' E	700
21	Nurdağı, Atmalı	37°08' N – 36°52' E	620
22	Nurdağı, Atmalı	37°07' N – 36°53' E	700
23	Nurdağı, Atmalı	37°07' N – 36°51' E	715
24	Nurdağı, Bademli	37°13' N – 36°45' E	610
25	Nurdağı, Belpınar	37°12' N – 36°46' E	540
26	Nurdağı, Belpınar	37°12' N – 36°45' E	545
27	Nurdağı, Hamidiye	37°06' N – 36°53' E	810
28	Nurdağı, Hamidiye	37°05' N – 36°53' E	800
29	Nurdağı, İçerisu	37°09' N – 36°50' E	580
30	Nurdağı, İncirli	37°14' N – 36°59' E	600
31	Nurdağı, Kırkpınar	37°03' N – 36°51' E	920
32	Nurdağı, Kırkpınar	37°04' N – 36°52' E	975
33	Nurdağı, Kömürler	37°10' N – 36°48' E	910
34	Nurdağı, Kömürler	37°09' N – 36°48' E	535
35	Nurdağı, Kuzuluk	36°04' N – 36°54' E	1200
36	Nurdağı, Olucak	37°10' N – 36°41' E	810
37	Nurdağı, Olucak	37°10' N – 36°40' E	950
38	Nurdağı, Olucak	37°09' N – 36°40' E	980
39	Nurdağı, Ökkeşiye	37°04' N – 37°50' E	1010
40	Nurdağı, Sakçağöz	37°10' N – 36°55' E	850
41	Nurdağı, Tüllüce	37°09' N – 36°51' E	590
42	Oğuzeli, centre	36°58' N – 37°30' E	700
43	Oğuzeli, centre	36°57' N – 37°30' E	670
44	Oğuzeli, Karataş	36°53' N – 37°33' E	627
45	Oğuzeli, Yakacık	36°54' N – 37°32' E	639
46	Oğuzeli, Yalnızbağ	36°59' N – 37°26' E	782
47	Şahinbey, Aslanlıbel	37°01' N – 37°22' E	840
48	Şahinbey, centre	37°03' N – 37°21' E	865
49	Şahinbey, Gaziantep Zoo	37°02' N – 37°17' E	970
50	Şahinbey, Öğümsöğüt	37°07' N – 37°17' E	1060

Table 1. (continued)

No	Localities	Coordinates	Altitudes (m)
51	Şahinbey, Yeşilkent	37°02' N – 37°25' E	780
52	Şehitkamil, Atalar	37°11' N – 36°01' E	1140
53	Şehitkamil, Bus station	37°06' N – 37°24' E	840
54	Şehitkamil, Cerityeniyapan	37°10' N – 37°08' E	1070
55	Şehitkamil, Durnalık	37°10' N – 37°11' E	1000
56	Şehitkamil, Dülükbaba picnic area	37°06' N – 37°19' E	1040
57	Şehitkamil, Dülükbaba picnic area	37°07' N – 37°19' E	1110
58	Şehitkamil, Yeşilce	37°10' N – 37°12' E	1045
59	Yavuzeli, Aşağıkekliktepe	37°17' N – 37°36' E	830
60	Yavuzeli, Büyükkarakuyu	37°13' N – 37°31' E	600
61	Yavuzeli, Çimenli	37°16' N – 37°34' E	710
62	Yavuzeli, Halilbaşı	37°16' N – 37°31' E	560
63	Yavuzeli, Küçükkarakuyu	37°21' N – 37°33' E	980
64	Yavuzeli, Sarıbuğdaylı	37°17' N – 37°31' E	560

7. *Hymenoscyphus calyculus* (Fr.) W. Phillips: On *Fagus* sp. twig, locality 11, 01.11.2014, K.10452.

8. *Hymenoscyphus fructigenus* (Bull.) Gray: On decaying *Quercus* sp. cupules, locality 62, 02.11.2014, K. 10468; locality 39, 07.11.2015, K.12720.

9. *Hymenoscyphus herbarum* (Pers.) Dennis: On dead herb stem, locality 50, 16.11.2014, K.10683; locality 42, 13.12.2014, K.11068.

10. *Hymenoscyphus serotinus* (Pers.) W. Phillips: On *Fagus* sp. twig, locality 11, 14.11.2015, K.12781.

**Marthamycetaceae** H.O. Baral, G. Lantz, Hustad & Minter

11. *Naemacyclus fimbriatus* (Schwein.) DiCosmo, Peredo & Minter: On pine cones, locality 8, 07.03.2014, K.8532.

**Rutstroemiaceae** Holst-Jensen

12. *Rutstroemia firma* (Pers.) P. Karst.: On pine twigs, locality 36, 05.12.2014, K.10926.

**Sclerotiniaceae** Whetzel

13. *Ciboria rufofusca* (O. Weberb.) Sacc.: On dead *Abies* sp. cones, locality 11, 26.04.2014, K.8877.

14. *Sclerotinia sclerotiorum* (Lib.) de Bary: On soil under *Populus* sp., locality 62, 29.03.2015, K.11558.

**Rhytismatales** M.E. Barr ex Minter

**Rhytismataceae** Chevall.

15. *Lophodermium arundinaceum* (Schrad.) Chevall.: On pine needles, locality 30, 05.12.2014, K.10877.

16. *Propolis farinosa* (Pers.) Fr.: On *Quercus* sp. twigs, locality 36, 05.12.2014, K.10892; locality 39, 12.04.2015, K.11743.

**Pezizomycetes** O.E. Erikss. & Winka

**Pezizales** J. Schröt.

**Caloscyphaceae** Harmaja

17. *Caloscypha fulgens* (Pers.) Boud.: Among needle litter, locality 37, 29.03.2013, K.7808.

**Helvellaceae** Fr.

18. *Helvella acetabulum* (L.) Quéf.: Among leaf litter in mixed forest, locality 40, 18.04.2015, K.11763; locality 31, 18.04.2015, K.11768.

19. *Helvella lacunosa* Afzel.: Among grass in mixed forest, locality 36, 10.04.2015, K.11672; locality 20, 12.12.2014, K.10978.

20. *Helvella leucomelaena* (Pers.) Nannf.: Among pine needles, locality 40, 29.03.2013, K.7831; locality 37, 20.03.2015, K.11436; locality 32, 12.04.2015, K.11741.

21. *Helvella leucopus* Pers.: Among grass under *Populus* sp. locality 21, 12.04.2015, K.11722.

22. *Helvella macropus* (Pers.) P. Karst.: Among grass in mixed forest, locality 11, 26.04.2014, K.8879.

23. *Helvella monachella* (Scop.) Fr.: Among grass in mixed forest, locality 27, 04.04.2015, K.11633.

24. *Helvella queletii* Bres.: Among leaf litter in mixed forest, locality 7, 28.03.2015, K.11542.

**Morchellaceae** Rchb.

25. *Mitrophora semilibera* (DC.) Lév.: Among grass, locality 47, 05.04.2013, K.7857.
26. *Morchella deliciosa* Fr.: Among grass in pine forest, locality 56, 30.03.2013, K.7838; locality 50, 06.04.2013, K. 7867.
27. *Morchella elata* Fr.: Among grass in mixed forest, locality 27, 04.04.2015, K.11636; locality 33, 03.05.2015, K.11907.
28. *Morchella esculenta* (L.) Pers.: Among grass in mixed forest, locality 36, 03.04.2015, K.11574; locality 52, 17.04.2015, K.11758.
29. *Verpa conica* (O.F. Müll.) Sw.: Among grass under *Populus* sp., locality 62, 29.03.2015, K.11563.
- Pezizaceae** Dumort.
30. *Iodophanus carneus* (Pers.) Korf: On decaying dung, locality 48, 24.12.2014, K.11119.
31. *Peziza badia* Pers.: Among grass in mixed forest, locality 10, 08.11.2014, K. 10547.
32. *Peziza cerea* Sowerby ex Fr.: Among remains of herbs, locality 11, 01.11.2014, K.10458.
33. *Peziza fimeti* (Fuckel) E.C. Hansen: On cow dung, locality 9, 26.10.2014, K.10268.
34. *Peziza pseudoviolacea* Donadini: On ash in mixed forest, locality 11, 26.04.2014, K.8871.
35. *Peziza vesiculosa* Bull.: Among remains of herbs in mixed forest, locality 27, 04.04.2015, K.11637.
36. *Peziza violacea* Pers.: On ash, locality 18, 28.02.2015, K.11354.
37. *Sarcosphaera coronaria* (Jacq.) J. Schröt.: Among needle litter in mixed forest, locality 12, 27.04.2013, K.7919.
38. *Terfezia boudieri* Chatin: In soil among *Helianthemum* sp., locality 17, 30.03.2013, K.7839.
- Pyronemataceae** Corda
39. *Cheilymenia fimicola* (Bagl.) Dennis: On cow dung, locality 25, 09.03.2014, K.8606.
40. *Cheilymenia theleboides* (Alb. & Schwein.) Boud.: On decaying animal body parts, locality 7, 28.03.2015, K.11533.
41. *Geopora arenicola* (Lév.) Kers: On sandy soil among grass, locality 60, 20.04.2012, K.7418; locality 30, 05.12.2014, K.10873.
42. *Geopora arenosa* (Fuckel) S. Ahmad: Among grass in *Quercus* sp. forest, locality 58, 12.04.2015, K.11704; locality 21, 04.04.2015, K.11617.
43. *Geopora sumneriana* (Cooke) M. Torre: Among grass in mixed forest, locality 20, 12.12.2014, K.10986.
44. *Humaria hemisphaerica* (F.H. Wigg.) Fuckel: Among grass in mixed forest, locality 38, 30.11.2014, K.10819.
45. *Hypotarzetta insignis* (Berthet & Rioussset) Donadini: On soil in pine forest, locality 35, 18.04.2015, K.11782.
46. *Octospora grimmiae* Dennis & Itzerott: Among moss, locality 56, 01.03.2015, K.11369.
47. *Tarzetta catinus* (Holmsk.) Korf & J.K. Rogers: On soil in mixed forest, locality 27, 04.04.2015, K.11627.
48. *Tarzetta cupularis* (L.) Svrček: On soil in mixed forest, locality 31, 18.04.2015, K.11770.
- Tuberaceae** Dumort.
49. *Tuber borchii* Vittad.: In soil under *Quercus* sp., locality 39, 24.10.2015, K.12541.
- Sordariomycetes** O.E. Erikss. & Winka
- Diaporthales** Nannf.
- Valsaceae** Tul. & C. Tul.
50. *Valsa sordida* Nitschke: On *Populus* sp. stump, locality 61, 09.03.2014, K.8550.
- Hypocreales** Lindau
- Nectriaceae** Tul. & C. Tul.
51. *Dialonectria episphaeria* (Tode) Cooke: On *Diatrype* sp. growing on *Quercus* sp. twigs, locality 36, 05.12.2014, K.10900; locality 37, 20.03.2015, K.11438.
- Xylariales** Nannf.
- Diatrypaceae** Nitschke
52. *Diatrype bullata* (Hoffm.) Fr.: On dead *Fagus* sp. twigs, locality 11, 12.04.2014, K.8837.
53. *Diatrype disciformis* (Hoffm.) Fr.: On dead *Fagus* sp. twigs, locality 11, 12.04.2014, K.8808.
54. *Diatrype stigma* (Hoffm.) Fr.: On dead *Fagus* sp. twigs, locality 12, 02.05.2014, K.8917.
- Basidiomycota** R.T. Moore
- Agaricomycetes** Doweld
- Agaricales** Underw.
- Agaricaceae** Chevall.

55. *Agaricus bitorquis* (Quél.) Sacc.: Among grass, locality 49, 15.11.2015, K.12790.
56. *Agaricus campestris* L.: Meadow, locality 20, 05.12.2015, K.12810.
57. *Agaricus moelleri* Wasser: On soil in mixed forest, locality 26, 26.10.2014, K.10251.
58. *Agaricus sylvaticus* Schaeff.: Among grass in *Quercus* sp. forest, locality 36, 06.11.2015, K.12652.
59. *Agaricus xanthodermus* Genev.: Among grass in forest clearing, locality 56, 24.11.2013, K.6536.
60. *Battarrea phalloides* (Dicks.) Pers.: Among grass, locality 43, 05.04.2015, K.11666.
61. *Bovista aestivalis* (Bonord.) Demoulin: Among grass in pine forest, locality 26, 08.11.2015, K.12761.
62. *Bovista nigrescens* Pers.: Among grass, locality 36, 15.02.2015, K.8459.
63. *Bovista plumbea* Pers.: Among grass in mixed forest, locality 31, 18.04.2015, K.11772; locality 3, 18.04.2015, K.11774.
64. *Coprinus comatus* (O.F. Müll.) Pers.: Among grass, locality 56, 03.01.2015, K.11138; locality 36, 05.12.2014, K.10909; locality 41, 03.04.2015, K.11575.
65. *Crucibulum laeve* (Huds.) Kambly: On dead twigs, locality 25, 07.12.2013, K. 8457.
66. *Cyathus olla* (Batsch) Pers.: On woody particles and dungs, locality 38, 30.11.2014, K.10838; locality 34, 10.04.2015, K.11701.
67. *Cyathus stercoreus* (Schwein.) De Toni: On cow dung, locality 26, 26.10.2014, K.10263; locality 28, 12.12.2014, K.11048.
68. *Cystoderma amianthinum* (Scop.) Fayod: Among needle litter in pine forest, locality 28, 12.12.2014, K.11043.
69. *Cystodermella cinnabarina* (Alb. & Schwein.) Harmaja: Among needle litter in pine forest, locality 49, 10.11.2013, K.8277.
70. *Leucoagaricus leucothites* (Vittad.) Wasser: Among grass near pine forest, locality 28, 06.11.2015, K.12677; locality 23, 06.11.2015, K.12696.
71. *Lycoperdon excipuliforme* (Scop.) Pers.: Among grass in mixed forest, locality 35, 18.04.2015, K.11780.
72. *Lycoperdon molle* Pers.: Among grass in pine forest, locality 38, 29.11.2013, K.8372; locality 37, 06.11.2015, K.12657.
73. *Lycoperdon perlatum* Pers.: Among leaf-needle litter in mixed forest, locality 26, 26.10.2014, K.10258; locality 37, 06.11.2015, K.12658.
74. *Lycoperdon pratense* Pers.: Among grass in *Quercus* sp. forest, locality 37, 06.11.2015, K.12649.
75. *Macrolepiota excoriata* (Schaeff.) Wasser: Among grass in *Quercus* sp. forest, locality 26, 26.10.2014, K.10264.
76. *Macrolepiota mastoidea* (Fr.) Singer: Among grass, locality 63, 02.12.2011, K.7336.
77. *Macrolepiota procera* (Scop.) Singer: Among grass in pine forest, locality 5, 18.10.2014, K. 9987.
78. *Tulostoma brumale* Pers.: Among grass with moss in *Quercus* sp. forest, locality 54, 07.03.2015, K.11400; locality 58, 12.04.2015, K.11712.
79. *Tulostoma fimbriatum* Fr.: Among grass, locality 57, 01.03.2015, K.11368; locality 43, 05.04.2015, K.11647.
80. *Tulostoma melanocyclum* Bres.: Among moss in mixed forest, locality 58, 20.03.2015, K.11439.
- Amanitaceae** R. Heim ex Pouzar
81. *Amanita excelsa* (Fr.) Bertill.: Among grass in *Quercus* sp. forest, locality 23, 06.11.2015, K.12692.
- Bolbitiaceae** Singer
82. *Bolbitius titubans* (Bull.) Fr.: Among grass under *Populus* and *Salix* sp., locality 62, 29.03.2015, K.11562.
83. *Conocybe apala* (Fr.) Arnolds: Among grass, locality 24, 03.12.2011, K.7351; locality 16, 14.12.2014, K.11090.
84. *Conocybe filaris* (Fr.) Kühner: On decaying cow dung, locality 28, 12.12.2014, K.11037.
85. *Conocybe rickenii* (Jul. Schäff.) Kühner: Among grass, locality 33, 03.05.2015, K.11905.
86. *Galeropsis desertorum* Velen. & Dvořák: Among grass in mixed forest, locality 41, 06.11.2015, K.12667; locality 39, 07.11.2015, K.12718.
- Cyphellaceae** Lotsy
87. *Chondrostereum purpureum* (Pers.) Pouzar: On wood remains, locality 57, 10.11.2013, K. 8273.
- Entolomataceae** Kotl. & Pouzar
88. *Entoloma rusticoides* (Gillet) Noordel.:

Among grass in pine forest, locality 49, 15.11.2015, K.12802.

**Hydnangiaceae** Gäum. & C.W. Dodge

89. *Laccaria laccata* (Scop.) Cooke: Among leaf and needle litter in mixed forest, locality 11, 01.11.2014, K.10406.

**Hygrophoraceae** Lotsy

90. *Ampulloclitocybe clavipes* (Pers.) Redhead, Lutzoni, Moncalvo & Vilgalys: Among grass in pine forest, locality 24, 03.12.2011, K.7367.

91. *Hygrocybe conica* (Schaeff.) P. Kumm.: Among grass in mixed forest, locality 38, 30.11.2014, K.10822.

**Hymenogastraceae** Vittad.

92. *Galerina graminea* (Velen.) Kühner: Among grass, locality 56, 30.11.2012, K.7634.

93. *Galerina marginata* (Batsch) Kühner: On dead twigs and stump in pine forest, locality 24, 03.12.2011, K.7358.

**Incertae Sedis**

94. *Panaeolina foenisecii* (Pers.) Maire: Among grass, locality 53, 24.10.2014, K.10096.

95. *Panaeolus fimicola* (Pers.) Gillet: Among grass in pine forest, locality 28, 12.12.2014, K.11035.

96. *Panaeolus olivaceus* F.H. Møller: Among grass, locality 33, 03.05.2015, K.11903.

**Inocybaceae** Jülich

97. *Inocybe amblyospora* Kühner: Among needle litter in pine forest, locality 4, 21.03.2014, K.8716.

98. *Inocybe bongardii* (Weinm.) Quél.: Among needle litter in pine forest, locality 34, 10.04.2015, K.11699.

99. *Inocybe cincinnata* (Fr.) Quél.: Among needle litter in pine forest, locality 9, 21.03.2014, K.8726.

100. *Inocybe geophylla* (Bull.) P. Kumm.: Among leaf-needle litter in mixed forest, locality 38, 30.11.2014, K.10820.

101. *Inocybe rimosa* (Bull.) P. Kumm.: Among grass in mixed forest, locality 12, 30.11.2013, K.8377.

102. *Phaeomarasmium erinaceus* (Fr.) Scherff. ex Romagn.: On *Quercus* sp. branch, locality 12, 01.11.2014, K.10399.

**Marasmiaceae** Roze ex Kühner

103. *Calyptrella capula* (Holmsk.) Quél.: On *Quercus* sp. twigs, locality 36, 05.12.2014,

K.10927.

104. *Henningsomyces candidus* (Pers.) Kuntze: On pine stump, locality 4, 14.11.2014, K.10660.

105. *Macrocystidia cucumis* (Pers.) Joss.: Among leaf litter in pine forest, locality 56, 30.11.2012, K.7636.

106. *Marasmius anomalus* Lasch ex Rabenh.: Among grass, locality 6, 18.10.2014, K.9925; locality 26, 14.12.2014, K.11101.

107. *Marasmius epodius* Bres.: Among grass in pine forest, locality 30, 05.12.2014, K.10866.

108. *Marasmius oreades* (Bolton) Fr.: Among grass, locality 12, 02.05.2014, K.8903.

109. *Marasmius wynneae* Berk. & Broome: Among leaf litter under *Quercus* sp., locality 61, 02.12.2012, K. 7346.

**Mycenaceae** Roze

110. *Hemimycena lactea* (Pers.) Singer: On decaying needle litter, locality 36, 05.12.2014, K.10910; locality 24, 03.12.2011, K.7351.

111. *Mycena crocata* (Schrad.) P. Kumm.: On decaying wood remains, locality 11, 14.11.2015, K.12783.

112. *Mycena pura* (Pers.) P. Kumm.: Around *Quercus* sp., locality 26, 07.03.2014, K.8499.

113. *Mycena rosea* Gramberg: Among needle litter in pine forest, locality 26, 26.10.2014, K.10259.

114. *Mycena seynii* Quél.: On pine cones, locality 57, 16.11.2012, K.7508; locality 36, 05.12.2014, K.10922.

115. *Scytinotus violaceofulvus* (Batsch) Courtec.: On *Abies* sp. twigs, locality 11, 12.04.2014, K.8800.

116. *Xeromphalina campanella* (Batsch) Kühner & Maire: On dead stump, locality 37, 18.04.2010, K.7171.

117. *Xeromphalina caudicinalis* (With.) Kühner & Maire: Among needle litter, locality 3, 30.11.2013, K.8400.

**Niaceae** Jülich

118. *Lachnella alboviolascens* (Alb. & Schwein.) Fr.: On dead *Populus* sp. twigs, locality 51, 06.12.2014, K.10968.

**Omphalotaceae** Bresinsky

119. *Gymnopus dryophilus* (Bull.) Murrill: Among leaf-needle litter in mixed forest, locality 28, 06.11.2015, K.12669; locality 39, 07.11.2015, K.12719.

120. *Gymnopus erythropus* (Pers.) Antonín, Halling & Noordel.: Among decaying *Quercus* sp. leaves, locality 36, 05.12.2014, K.10896.

121. *Gymnopus ocior* (Pers.) Antonín & Noordel.: Among leaf-needle litter in mixed forest, locality 56, 16.11.2012, K.7507.

122. *Gymnopus quercophilus* (Pouzar) Antonín & Noordel.: Among decaying *Quercus* sp. leaves, locality 37, 10.04.2015, K.11689.

123. *Omphalotus olearius* (DC.) Singer: On *Quercus* sp. stump, locality 525, 07.11.2015, K.12699.

#### **Physalacriaceae** Corner

124. *Armillaria borealis* Marxm. & Korhonen: On decaying stump, locality 59, 16.02.2014, K.8497.

125. *Armillaria mellea* (Vahl) P. Kumm.: On decaying stump, locality 24, 03.12.2011, K.7370.

126. *Strobilurus stephanocystis* (Kühner & Romagn. ex Hora) Singer: On pine cones, locality 24, 03.12.2011, K.7360.

127. *Strobilurus tenacellus* (Pers.) Singer: Among needle litter in pine forest, locality 24, 03.12.2011, K.7368.

#### **Pleurotaceae** Kühner

128. *Hohenbuehelia petaloides* (Bull.) Schulzer: Among leaf litter around *Quercus* sp., locality 1, 26.12.2009, K.6921; among needle litter, locality 24, 03.12.2011, K.7385.

129. *Pleurotus dryinus* (Pers.) P. Kumm.: On *Salix* sp. stump, locality 62, 02.11.2014, K.10512.

130. *Pleurotus ostreatus* (Jacq.) P. Kumm.: On *Salix* sp. stump, locality 42, 13.04.2013, K.7896; locality 20, 12.04.2013, K.7875.

#### **Pluteaceae** Kotl. & Pouzar

131. *Pluteus romellii* (Britzelm.) Sacc.: On soil around *Salix* sp., locality 62, 19.05.2013, K.8450.

132. *Volvopluteus gloiocephalus* (DC.) Justo: Among grass, locality 47, 25.11.2012, K.7620.

#### **Psathyrellaceae** Vilgalys, Moncalvo & Redhead

133. *Coprinellus disseminatus* (Pers.) J.E. Lange: On damp soil under *Populus* sp., locality 46, 13.04.2013, K.7880; locality 43, 13.04.2013, K.7894.

134. *Coprinellus ephemerus* (Bull.) Redhead, Vilgalys & Moncalvo: Among grass in pine

forest clearing, locality 25, 09.03.2014, K.8607; locality 19, 22.03.2015, K.11493.

135. *Coprinellus micaceus* (Bull.) Vilgalys, Hopple & Jacq. Johnson: On *Populus* sp. stump, locality 45, 30.03.2013, K.7844; locality 46, 23.11.2013, K.8317.

136. *Coprinopsis atramentaria* (Bull.) Redhead, Vilgalys & Moncalvo: Around *Populus* sp. stump, locality 21, 12.04.2015, K.11723.

137. *Coprinopsis lagopides* (P. Karst.) Redhead, Vilgalys & Moncalvo: On cow dung, locality 521, 18.04.2015, K.11764.

138. *Coprinopsis nivea* (Pers.) Redhead, Vilgalys & Moncalvo: On decaying cow dung, locality 31, 18.04.2015, K.11767.

139. *Parasola plicatilis* (Curtis) Redhead, Vilgalys & Hopple: Among grass under *Salix* sp., locality 13, 25.10.2014, K.10220.

140. *Psathyrella bipellis* (Qué.) A.H. Sm.: Among leaf litter in mixed forest, locality 22, 12.12.2014, K.10990.

141. *Psathyrella candolleana* (Fr.) Maire: Around *Populus* sp. remains, locality 42, 21.04.2012, K.7439; locality 33, 03.05.2015, K.11906.

#### **Pterulaceae** Corner

142. *Pterula multifida* (Chevall.) Fr.: Among needle litter in pine forest, locality 28, 05.12.2015, K.12817.

#### **Schizophyllaceae** Qué.

143. *Schizophyllum amplum* (Lév.) Nakasone: On dead *Populus* sp. twigs, locality 15, 25.10.2014, K.10195.

144. *Schizophyllum commune* Fr.: On stump, locality 25, 29.03.2013, K.7822; locality 36, 15.02.2014; K.8462.

#### **Strophariaceae** Singer & A.H. Sm.

145. *Agrocybe molesta* (Lasch) Singer: Among grass, locality 53, 24.10.2014, K.10095.

146. *Agrocybe pediades* (Fr.) Fayod: Among grass in pine forest clearing, locality 32, 12.04.2015, K.11738.

147. *Agrocybe vervacti* (Fr.) Singer: Among grass, locality 49, 15.11.2015, K.12801.

148. *Cyclocybe cylindracea* (DC.) Vizzini & Angelini: On *Populus* sp. stump, locality 44, 30.03.2013, K.7842; locality 26, 08.11.2015, K.12756; locality 14, 08.03.2014, K.8549.

149. *Hypholoma fasciculare* (Huds.) P. Kumm.: Around *Quercus* sp. stump, locality 36, 05.12.2014, K.10921.



150. *Protostropharia semiglobata* (Batsch) Redhead, Moncalvo & Vilgalys: Among grass, locality 49, 15.11.2015, K.12787.
151. *Psilocybe coprophila* (Bull. : Fr.) P. Kumm: On decaying cow dung, locality 25, 29.03.2013, K.7821; locality 19, 22.03.2015, K.11499.
152. *Stropharia aeruginosa* (Curtis) Qué.: Among grass in mixed forest, locality 23, 06.11.2015, K.12686; locality 40, 07.11.2015, K.12704.
153. *Stropharia coronilla* (Bull.) Qué.: Among grass in pine or mixed forest, locality 29, 19.10.2014, K.10021; locality 30, 05.12.2014, K.10857.
- Tricholomataceae** R. Heim ex Pouzar
154. *Arrhenia retiruga* (Bull.) Redhead: Among moss in pine forest, locality 61, 29.03.2015, K.11549.
155. *Arrhenia rickenii* (Hora) Watling: Among moss in *Quercus* sp. forest, locality 30, 05.12.2014, K.10882.
156. *Arrhenia spathulata* (Fr.) Redhead: On moss, locality 58, 12.04.2015, K.11717; locality 20, 06.11.2015, K.12683; locality 38, 30.11.2014, K.10812.
157. *Clitopaxillus alexandri* (Gillet) G. Moreno, Vizzini, Consiglio & P. Alvarado: Among needle litter in pine forest, locality 24, 03.12.2011, K.7362.
158. *Clitocybe gibba* (Pers.) P. Kumm.: Among needle litter in pine forest, locality 36, 05.12.2014, K.10929.
159. *Infundibulicybe geotropa* (Bull.) Harmaja: Among leaf litter in *Quercus* sp., locality 23, 06.11.2015, K.12688.
160. *Lepista nuda* (Bull.) Cooke: Among leaf or needle litter in pine, *Quercus* or mixed forest, locality 57, 30.03.2013, K.7837; locality 26, 28.03.2015, K.11528.
161. *Leucopaxillus gentianeus* (Qué.) Kotl.: Among needle litter in pine forest, locality 11, 14.11.2015, K.12786.
162. *Melanoleuca cognata* (Fr.) Konrad & Maubl.: Among grass in mixed forest, locality 3, 18.04.2015, K.11775.
163. *Melanoleuca excissa* (Fr.) Singer: Among grass in pine forest clearing, locality 37, 10.04.2015, K.11690.
164. *Melanoleuca polioleuca* (Fr.) Kühner & Maire: Among grass in mixed forest, locality 36, 05.12.2014, K.10920; locality 28, 12.12.2014, K.11041.
165. *Melanoleuca stridula* (Fr.) Singer: Among needle litter in pine forest, locality 26, 07.03.2014, K.8504.
166. *Myxomphalia maura* (Fr.) H.E. Bigelow: Among needle litter, locality 56, 16.11.2012, K.7501.
167. *Pseudoclitocybe cyathiformis* (Bull.: Fr.) Singer: Among needle litter in pine forest, locality 20, 29.11.2014, K.10763; locality 30, 05.12.2014, K.10878.
168. *Resupinatus trichotis* (Pers.) Singer: On *Quercus* sp. twigs, locality 27, 12.12.2014, K.11025.
169. *Tricholoma terreum* (Schaeff.) P. Kumm.: Among needle litter in pine forest, locality 56, 16.11.2012, K.7506; locality 57, 21.03.2014, K. 8689; locality 36, 05.12.2014, K.10916.
- Tubariaceae** Vizzini
170. *Tubaria conspersa* (Pers.) Fayod: Among leaf litter, locality 32, 31.03.2013, K.7852.
- Typhulaceae** Jülich
171. *Typhula fistulosa* (Holmsk.) Olariaga: On herb remains, locality 10, 08.11.2014, K.10554.
- Auriculariales** J. Schröt.
- Auriculariaceae** Fr.
172. *Exidia glandulosa* (Bull.) Fr.: On dead *Quercus* sp. twigs, locality 39, 12.04.2015, K.11742.
173. *Exidia nigricans* (With.) P. Roberts: On dead *Quercus* sp. twigs, locality 20, 12.12.2014, K.11004.
- Boletales** E.-J. Gilbert
- Boletaceae** Chevall.
174. *Boletus edulis* Bull.: Among grass in mixed forest, locality 11, 24.10.2014, K.10183.
175. *Boletus erythropus* Pers.: Among grass in *Quercus* sp. forest, locality 39, 07.11.2015, K.12722.
176. *Xerocomellus chrysenteron* (Bull.) Šutara: Among grass in mixed forest, locality 36, 06.11.2015, K.12695; locality 39, 07.11.2015, K.12722.
- Diplocystidiaceae** Kreisel
177. *Astraeus hygrometricus* (Pers.) Morgan: Among leaf litter in mixed forest, locality 22, 12.12.2014, K.10995; locality 27, 04.04.2015, K.11632
- Gomphidiaceae** Maire ex Jülich
178. *Chroogomphus rutilus* (Schaeff.) O.K.

Mill.: Among needle litter in pine forest, locality 57, 30.11.2012, K.7626; locality 22, 29.11.2014, K.10767.

**Rhizopogonaceae** Gäum. & C.W. Dodge

179. *Rhizopogon luteolus* Fr.: In soil in pine forest, locality 22, 29.11.2014, K.10765; locality 19, 22.03.2015, K.11498; locality 41, 03.04.2015, K.11577.

180. *Rhizopogon roseolus* (Corda) Th. Fr.: In soil in pine forest, locality 30, 05.12.2014, K.10875; locality 32, 12.04.2015, K.11737.

**Sclerodermataceae** Corda

181. *Pisolithus arhizus* (Scop.) Rauschert: Among leaf litter in *Quercus* sp. forest, locality 39, 24.10.2015, K.12542.

182. *Scleroderma cepa* Pers.: Among grass in mixed forest, locality 4, 14.11.2014, K.10631.

183. *Scleroderma verrucosum* (Bull.) Pers.: Among grass, locality 51, 13.11.2015, K.12778.

**Suillaceae** Besl & Bresinsky

184. *Suillus collinitus* (Fr.) Kuntze: Among needle litter in pine forest, locality 34, 10.04.2015, K.11697; locality 32, 12.04.2015, K.11736.

185. *Suillus granulatus* (L.) Roussel: Among grass in mixed forest, locality 27, 04.04.2015, K.11638.

186. *Suillus luteus* (L.) Roussel: Among needle litter in pine forest, locality 56, 16.11.2012, K.7495.

**Tapinellaceae** C. Hahn

187. *Tapinella panuoides* (Fr.) E.-J. Gilbert: On decaying stump, locality 24, 03.12.2011, K.7405.

**Cantharellales** Gäum

**Clavulinaceae** Donk

188. *Clavulina cinerea* (Bull.) J. Schröt.: Among needle litter in pine forest, locality 12, 14.11.2014, K.10648.

**Geastrales** K. Hosaka & Castellano

**Geastraceae** Corda

189. *Geastrum minimum* Schwein.: On mossy soil in pine forest, locality 28, 12.12.2014, K.11044.

190. *Geastrum pectinatum* Pers.: Among needle litter in pine forest, locality 12, 02.05.2014, K.8922.

191. *Sphaerobolus stellatus* Tode: On *Quercus* remain, locality 36, 05.12.2014, K.10902.

**Gomphales** Jülich

**Gomphaceae** Donk

192. *Gautieria trabutii* (Chatin) Pat.: In soil under *Quercus* sp., locality 151, 02.05.2014, K.8912.

**Hymenochaetales** Oberw.

**Hymenochaetaceae** Imazeki & Toki

193. *Phellinus hartigii* (Allesch. & Schnabl) Pat.: On *Abies* sp. stump, locality 63, 13.04.2013, K.7897.

194. *Phellinus pomaceus* (Pers.) Maire: On *Amygdalus* sp. stump, locality 26, 14.12.2014, K.11116.

**Phallales** E. Fisch.

**Phallaceae** Corda

195. *Phallus impudicus* L.: Among grass in mixed forest, locality 4, 14.11.2014, K.10635.

**Polyporales** Gäum.

**Ganodermataceae** Donk

196. *Ganoderma adspersum* (Schulzer) Donk: On stump, locality 43, 13.04.2013, K.7895.

197. *Ganoderma lucidum* (Curtis) P. Karst.: On decaying stump, locality 46, 13.04.2013, K.7885; locality 11, 12.04.2014, K.8834.

**Meruliaceae** Rea

198. *Bjerkandera adusta* (Willd.) P. Karst.: On *Quercus* sp. stump, locality 21, 12.04.2015, K.11720.

**Phanerochaetaceae** Jülich

199. *Terana coerulea* (Lam.) Kuntze: On *Quercus* sp. twigs, locality 20, 12.12.2014, K.10979.

**Polyporaceae** Fr. ex Corda

200. *Fomes fomentarius* (L.) Fr.: On *Salix* sp. stump, locality 46, 13.04.2013, K.7889.

201. *Lentinus arcularius* (Batsch) Zmitr.: On dead twigs, locality A2, 24.02.2010, K.7101.

202. *Lentinus brumalis* (Pers.) Zmitr.: On dead twigs, locality 20, 31.03.2013, K.7846.

203. *Lentinus tigrinus* (Bull.) Fr.: Around *Populus* sp. stump, locality 46, 21.04.2014, K.7441.

204. *Lenzites betulina* (L.) Fr.: On pine stump, locality 3, 18.04.2015, K.11773.

205. *Royoporus badius* (Pers.) A.B. De: On dead *Fagus* sp. twigs, locality 11, 01.11.2014, K.10457.

206. *Trametes hirsuta* (Wulfen) Lloyd: On dead *Quercus* sp. twigs, locality 57, 30.03.2013, K.7838; locality 7, 28.03.2015, K.11539; locality 58, 12.04.2015, K.11715.

207. *Trametes versicolor* (L.) Lloyd: On *Quercus* sp. stump, locality 55, 12.04.2015.

K.11716; locality 3, 18.04.2015, K.11777.  
**Russulales** Kreisel ex P.M. Kirk, P.F. Cannon & J.C. David

**Auriscalpiaceae** Maas Geest.

208. *Lentinellus micheneri* (Berk. & M.A. Curtis) Pegler: Among needle litter in pine forest, locality 24, 03.12.2011, K.7353.

**Russulaceae** Lotsy

209. *Lactarius deliciosus* (L.) Gray: Among needle litter in mixed forest, locality 24, 02.12.2011, K.7356; locality 22, 29.11.2014, K.10766.

210. *Lactarius torminosus* (Schaeff.) Gray: Among grass in *Quercus* sp. forest, locality 40, 07.11.2015, K.12710.

211. *Russula virescens* (Schaeff.) Fr.: Among needle litter in mixed forest, locality 12, 01.11.2014, K.10376.

**Stereaceae** Pilát

212. *Stereum hirsutum* (Willd.) Pers.: On dead *Quercus* sp. twigs, locality 41, 31.03.2013, K.7845; locality 22, 12.12.2014, K.11003; locality 36, 04.04.2015, K.11603.

**Thelephorales** Corner ex Oberw.

**Bankeraceae** Donk

213. *Hydnellum caeruleum* (Hornem.) P. Karst.: Among needle litter in pine forest, locality 24, 03.12.2011, K.7372.

**Thelephoraceae** Chevall.

214. *Thelephora terrestris* Ehrh.: Among needle litter in pine forest, locality 38, 18.04.2010, K.7170.

**Dacrymycetes** Doweld

**Dacrymycetales** Henn.

**Dacrymycetaceae** J. Schröt.

215. *Calocera cornea* (Batsch) Fr.: On dead *Quercus* sp. stump, locality 11, 01.11.2014, K.10440.

216. *Dacrymyces capitatus* Schwein.: On *Quercus* sp. twigs, locality 36, 05.12.2014, K.10907.

217. *Dacrymyces stillatus* Nees: On *Quercus* sp. twigs, locality 19, 22.03.2015, K.11480.

## Discussion and Conclusion

Two hundred and seventeen macrofungi species belonging to 129 genera, 63 families, 19 orders and 6 classes were determined from Gaziantep. 54 of them belong to Ascomycota (1 Diaporthales, 13 Helotiales, 1 Hypocreales, 1 Patellariales, 33 Pezizales, 3 Xylariales) and 163 to Basidiomycota (117 Agaricales, 2 Auriculariales, 14 Boletales, 1 Cantharellales, 3 Dacrymycetales, 3 Geastrales, 1 Gomphales, 2 Hymenochaetales, 1 Phallales, 12 Polyporales, 5 Russulales, 2 Thelephorales).

Regarding the determined 217 species, Agaricaceae, Tricholomataceae and Pyronemataceae were found to be the most crowded three families in the region with 26, 16 and 10 species respectively.

There are some similarities between the findings of the present study and those of previous studies. The comparative data between the macrofungal composition of Gaziantep and the studies conducted in surrounding provinces was given in Table 2.

Table 2. Similarity percentages of neighboring studies with Gaziantep province.

	Number of identical taxa	Total taxa	Similarity percentage (%)
Adıyaman (Kaya, 2009a)	98	222	44.14
Hatay (Baba et al., 2013, 2014, Güngör et al., 2016)	63	153	41.18
Kahramanmaraş (Kaya, 2009b)	106	337	31.45
Kilis (Solak et al., 2014)	25	52	42.31
Osmaniye (Günay & Demirel 2006, Solak et al., 2011)	40	87	41.38
Şanlıurfa (Kaya, 2015)	89	118	66.95

Sixty of the 217 taxa are edible, but only six species, *Agaricus campestris*, *Coprinus comatus*, *Lactarius deliciosus*, *Pleurotus ostreatus*, *Terfezia boudieri* and *Tricholoma terreum*, are collected and consumed in the region by local people. Among them, *Terfezia boudieri* have local economic importance

while *T. anatolicum* have international economic importance. During autumn, lots of *T. anatolicum* fruit bodies are collected by some villagers for exporting companies.

One hundred and thirty eight of the determined taxa are regarded as inedible, while 19 are more or less poisonous. Among

the determined taxa, 60 are wood decaying, 6 are hygogeous, 7 are coprophilous, 2 are pyrophilous and 5 are bryophilous.

With the addition of 217 species to the previously reported 187 taxa, the determined macrofungi number in Gaziantep increased to 404.

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