SANBI
Biodiversity for Life
South African National Biodiversity Institute

African Biodiversity & Conservation
ISSN: 3078-8056

Checklist of Basidiomycete macrofungi diversity in the Djebel El Ouahch Forest in the Constantine region, northeastern Algeria

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Dates
Submitted: 19 February 2025
Accepted: 12 January 2026
Published: 19 May 2026

How to cite this article:
Zatout, R., 2026, 'Checklist of Basidiomycete macrofungi diversity in the Djebel El Ouahch Forest in the Constantine region, northeastern Algeria', *African Biodiversity & Conservation* 56.1, a4. http://dx.doi.org/10.38201/abc.v56.1.a4

This study offers the first systematic checklist of the mycoflora diversity in the Djebel El Ouahch Forest, located in the Constantine region of northeastern Algeria and covering an area of approximately 577 km². Investigations were conducted to document the presence of macrofungal species. Macrofungal species were surveyed based on their macroscopic and ecological characteristics and identified through morphological analysis and comparison with standard taxonomic keys and specialised databases. The results reveal several interesting and uncommon species. A total of 90 fungal species, belonging to 52 genera, 30 families and 8 orders were identified. Saprophytic and mycorrhizal species were more abundant than parasitic fungi. Several rare and ecologically significant species were recorded, including *Agaricus litoralis, Tricholoma pseudonictitans, Gloeophyllum abietinum, Coriolopsis gallica, C. trogii,* and *Trametes pubescens*. These findings highlight the contribution of the Djebel El Ouahch Forest's macrofungal community to the overall fungal biodiversity of the Constantine region. The Constantine region is an important area due to its high macrofungal biodiversity and its significance from a mycological perspective. Given the importance of fungi in terrestrial ecosystems and their potential interactions with plants, further studies should be conducted to expand knowledge of the fungal species present in this region.

Keywords: Basidiomycetes, checklist, Algeria, biodiversity, macrofungi.

Introduction

Macrofungi play diverse and essential roles in ecosystems, serving not only as crucial nutritional sources but also finding widespread applications in biotechnology, medicine and ecology (Badalyan & Zambonelli 2019; Zatout et al. 2021a). In biotechnology, they are used in the production of enzymes, antibiotics and other bioactive compounds (De Silva et al. 2013; Zatout et al. 2024; Zatout et al. 2026a). In medicine, certain species of macrofungi, such as *Ganoderma lucidum* (Curtis) P. Karst. (reishi mushroom), have been studied for their potential health benefits, including immune-boosting and anti-cancer properties (Chugh et al. 2022).

In the field of ecology, macrofungi contribute to soil formation and carbon cycling, making them key players in environmental sustainability (Tripathi et al. 2017; Liu et al. 2021).

Most of these macrofungi belong to the basidiomycete group. These basidiomycetes are particularly notable for their production of large, visible fruiting bodies, commonly known as mushrooms, which are the reproductive structures of the fungi. The visibility of these fruiting bodies to the naked eye makes

Basidiomycetes easily recognisable and important in ecological studies and fungal biodiversity surveys (Kirk et al. 2008; Zatout & Chaouche 2023a).

Macrofungi are heterotrophic organisms in terms of their carbon needs, meaning they rely on preformed organic matter for energy and the building blocks necessary for their growth, much like animals (Durrieu 1993; Karaman et al. 2012). These fungi can be categorised based on their ecological relationships: saprophytes feed on dead or decomposed organic matter; parasites derive their carbon from living organisms, exploiting them to the organism's detriment; and symbiotic species form mutually beneficial relationships with primary producers, such as plants, providing them with the organic substances they require through their roots (Dighton 2019; Sridhar 2019; Yu et al. 2023; Sridhar & Deshmukh 2024; Zatout et al. 2025).

Algeria is characterised by remarkable biodiversity due to its extensive range of bioclimatic zones, which span from humid Mediterranean coastal areas in the north to hyperarid Saharan landscapes in the south (Yahi et al. 2012). This ecological variety has given rise to a wide array of habitats and species, making Algeria one of the most ecologically diverse countries in North Africa (Zatout et al. 2021a). Among the many biological groups supported by these ecosystems, macrofungi represent an important yet understudied component of Algeria's biodiversity. Macrofungi, which include both basidiomycetes and ascomycetes visible to the naked eye, play crucial ecological roles in nutrient cycling, symbiotic interactions – particularly mycorrhizal relationships – and forest health (Kirk et al. 2008; Zatout & Chaouche 2023a).

In Algeria's northeastern regions, which are rich in forested landscapes and receive relatively high rainfall, several macrofungal species have been documented. For instance, forests dominated by *Quercus suber* L. (cork oak) and *Pinus halepensis* Mill. (Aleppo pine) have yielded fruiting bodies of ecologically significant species such as *Boletus edulis* Bull., *Amanita caesarea* (Scop.) Pers., *Cantharellus cibarius* Fr., and *Macrolepiota procera* (Scop.) Singer (Mesfek et al. 2021; Youcef Khodja 2023). These fungi are often found in the Kabylie region, the El Kala National Park and other humid or subhumid forest zones. Despite these promising findings, research on macrofungi in Algeria is still in its early stages. Only a limited number of systematic surveys have been conducted, and these are often restricted in scope, focusing on individual regions or short time periods (Djelloul & Samraoui 2011; Youcef Khodja et al. 2020).

Furthermore, some researchers in Tunisia have documented a variety of ectomycorrhizal and saprotrophic fungi associated with oak and pine forests in regions such as the Kroumirie and Mogod (Malençon 1952; Boussaidi et al. 2020). Some of these macrofungi are also expected to occur in Algerian ecosystems due to biogeographical continuity and ecological similarities with northeastern Algerian habitats (Ouali et al. 2021).

These findings suggest that North African Mediterranean forests, though underexplored, are potentially rich reservoirs of fungal biodiversity. Collectively, these regional patterns highlight an urgent need to enhance fungal research in Algeria and across North Africa. The Djebel El Ouahch Forest, located in the Constantine region of northeastern Algeria, stands out as an ecologically diverse area, yet no prior studies have documented its macrofungal communities. This forest offers a particularly suitable microclimate for macrofungal growth due to its elevation, forest structure and Mediterranean climatic conditions. Nevertheless, its macrofungal diversity has remained undocumented.

To our knowledge, no data currently exist on the macrofungal diversity of the Constantine region. This knowledge gap motivated us to conduct the first systematic survey of macrofungi in the Djebel El Ouahch Forest, northeastern Algeria. Our study aims to contribute to the regional fungal biodiversity inventory and fill critical gaps in taxonomy and distribution.

Materials and methods

Study area

The Djebel El Ouahch Forest is located in the Constantine region of northeastern Algeria and covers an area of approximately 577 km². It lies within the Tell Atlas range, between the Mediterranean coastline and the northern fringe of the Sahara Desert (Figure 1). This strategic location offers favourable topographical and ecological conditions that enhance the region's biodiversity.

The forest is characterised by a Mediterranean climate with pronounced temperature variations. Winters can be particularly cold, with temperatures dropping to -6°C, while summers are extremely hot, reaching up to 47°C. Annual precipitation ranges between 500 and 700 mm (Bouchahm 1987), supporting a diverse range of plant and fungal life.

Dominant tree species in the area include blue gum (*Eucalyptus globulus* Labill.), cork oak (*Quercus suber*), Aleppo pine (*Pinus halepensis*), and Mediterranean cypress (*Cupressus sempervirens* L.). These species are representative of typical Mediterranean forest ecosystems and play a crucial role in supporting local biodiversity (Soualah et al. 2024).

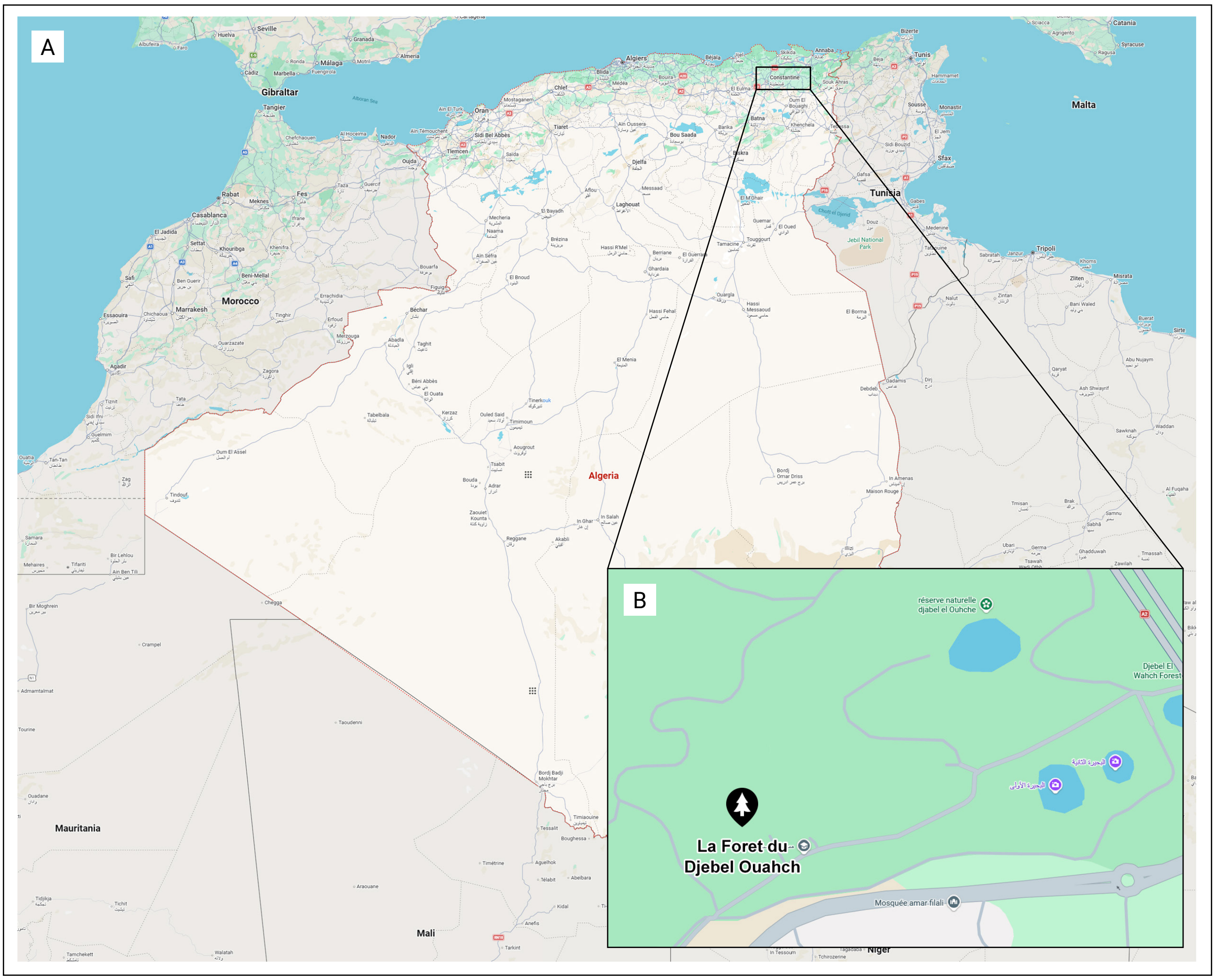

Figure 1. The study area in North Africa; A, map of the study area; B, location of Djebel El Ouahch Forest, near Constantine, Algeria.

Collection and identification of macrofungi

Surveys were conducted periodically after rainfall in the Djebel El Ouahch Forest between 2017 and 2018, with field visits taking place four to six times annually, typically between October and May. During each visit, macroscopic and ecological characteristics of the macrofungal specimens were recorded and photographed in their natural habitats. These characteristics included the shape, size, colour, cap, stipe (stalk), texture, growth habit and the type of substrate (such as soil, decaying wood or leaf litter) on which the fungi were found (Courtecuisse & Duhem 2013; Zatout et al. 2023b). Specimens were carefully collected and brought to the laboratory for further analysis and identification. In the laboratory, identification of the fungi focused on macroscopic features.

The collected specimens were processed using standard mycological techniques for specimen preservation, including drying, mounting and storing. Preliminary identification was carried out in the field by comparing observed characteristics with relevant literature sources, such as Bon (1987), which provided valuable keys to species identification. For further confirmation, more comprehensive resources like MycoKeys (www.mushroomexpert.com) and Species Fungorum (www.speciesfungorum.org) were consulted, ensuring a higher degree of accuracy in the identification process.

Results and discussion

A total of 90 macrofungal species were recorded from Djebel El Ouahch Forest in the Constantine region of northeastern Algeria. These species belong to 8 orders, 30 families and 52 genera, indicating considerable fungal diversity within the study area (Figure 2).

The macrofungi identified were categorised based on their ecological functional roles into three major trophic strategies: saprotrophic, mycorrhizal and parasitic. Saprotrophs represented 62% of the identified species, reflecting the humid conditions and abundance of decomposing organic material in the forest, which create

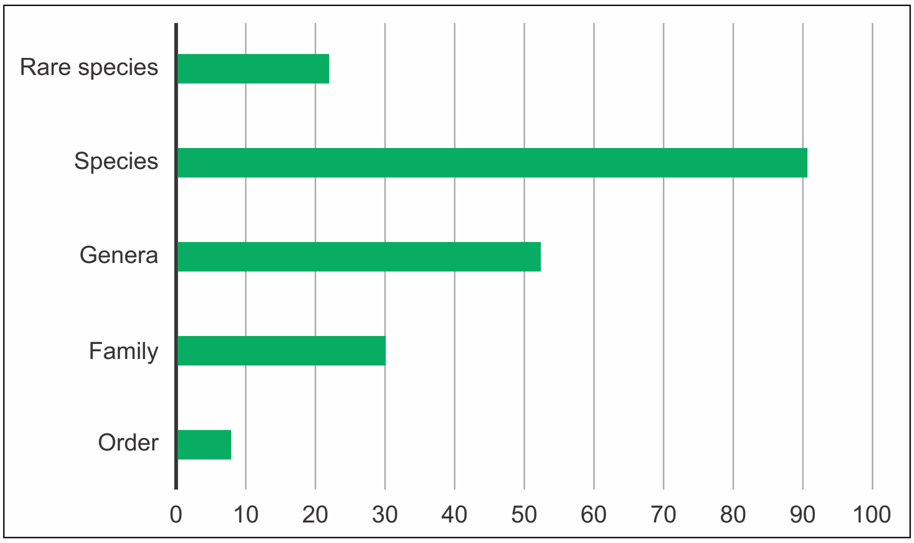

Figure 2. The taxonomic richness of Basidiomycota in the Djebel El Ouahch Forest, Constantine region, Algeria.

favourable environments for these fungi. The majority of saprotrophs belonged to the order *Agaricales*, while others from *Polyporales* and *Gloeophyllales* were also found on dead wood and forest litter. Other orders such as *Hymenochaetales*, *Phallales* and *Russulales* were also recorded.

Mycorrhizal fungi constituted 18% of the species, including members of the genera *Amanita* and *Tricholoma*, which are often found in association with *Quercus* species (Ortega et al. 2010; Guo et al. 2024). Other ectomycorrhizal species were also recorded, including *Astraeus hygrometricus* (Pers.) Morgan, *Clitocybe fragrans* (With.) P.Kumm., *Laccaria laccata* (Scop.) Cooke, *Lactarius deliciosus* (L.) Gray and *Suillus collinitus* (Fr.) Kuntze. These associations are consistent with ectomycorrhizal relationships commonly found in temperate and Mediterranean forest systems (Comandini et al. 2006).

Parasitic fungi made up 12% of the identified species, including *Ganoderma applanatum* (Pers.) Pat., *G. orbiforme* (Fr.) Ryvarden and *Porodaedalea pini* (Brot.) Murrill, while an additional 8% exhibited a dual life strategy – initially parasitic and later saprophytic (Figure 3). *Armillaria mellea* (Vahl) P.Kumm., is one such example, known to infect a range of host trees before continuing its life cycle as a saprobe (Spaulding 1961; Souto et al. 2024).

Some rare fungi were recorded in the study area, highlighting the unique biodiversity of Djebel El Ouahch Forest (Zatout et al. 2026b). These include *Agaricus litoralis* Wakef. & A.Pearson, a coastal or forest-dwelling species with a restricted distribution (Zatout et al. 2023b), *Tricholoma pseudonictitans* Bon, an ectomycorrhizal species associated with conifers, distinguishable by microscopic features (Garnier-Delcourt et al. 2012) and *Gloeophyllum abietinum* (Bull.) P.Karst., a brown-rot fungus commonly found on coniferous wood, playing a role in decomposition (Zatout et al. 2023a). Also recorded were *Coriolopsis gallica* (Fr.) Ryvarden, a saprotroph on hardwood with potential biotechnological value (Dajoz 1996; Bujakiewicz 2002; Zatout et al. 2026c), *C. trogii* (Berk.) Domański, known for its thermotolerant enzymes and lignin-degrading ability (Niemelä et al. 1992; Zhai et al. 2024), and *Trametes pubescens* (Schumach.) Pilát, a white-rot fungus important for lignin breakdown and studied for its environmental and medicinal applications (Vlasenko et al. 2020). These uncommon species may have specialised ecological roles or specific habitat requirements. Their presence underscores the importance of conserving this forest ecosystem to protect its full fungal diversity.

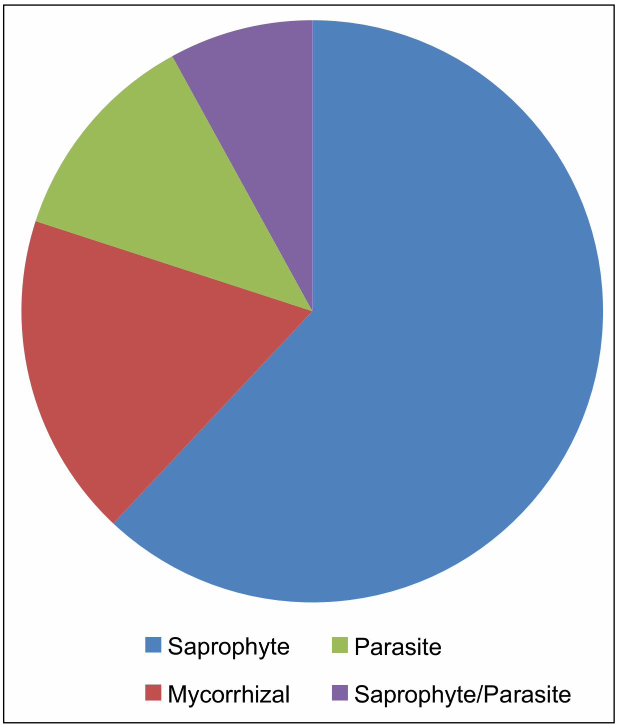

Figure 3. Ecological groups of macrofungi recorded in Djebel El Ouahch Forest (Constantine region, northeastern Algeria).

An analysis of the edibility and potential uses of the recorded species revealed that 40 species are considered edible, encompassing a variety of fungi that hold significant cultural and economic value. These species are not only consumed locally but also play a vital role in regional diets and traditional practices. Among these, notable examples such as *Agaricus bisporus* (J.E.Lange) Imbach (common button mushroom) and *Pleurotus ostreatus* (Jacq.) P.Kumm. (oyster mushroom) stand out due to their widespread cultivation and global consumption. Both species are well-documented for their nutritional benefits, including high protein content, essential vitamins and bioactive compounds with medicinal properties (Deepalakshmi & Sankaran 2014; Atila et al. 2017; Ramos et al. 2019).

Beyond their dietary importance, these fungi contribute economically by supporting local livelihoods through small-scale and commercial mushroom farming, providing sustainable income opportunities for rural communities. Additionally, some species have traditional cultural uses, such as being integral parts of local cuisine, rituals or folk medicine, reflecting their integration in the socio-cultural fabric of the region.

These findings underscore the forest's untapped potential as a valuable resource for both nutrition and economic development. The diversity of edible fungi highlights opportunities for promoting sustainable harvesting and cultivation practices that can enhance food security and rural economies while preserving biodiversity. Furthermore, integrating these species into local agricultural and economic strategies could foster greater appreciation and conservation of forest ecosystems.

In contrast, 27 species were identified as inedible, although some possess recognised medicinal properties. Genera such as *Ganoderma* and *Trametes* are well documented for their therapeutic applications, including antioxidant and antimicrobial activities (Cui & Zhang 2019; Habtemariam 2020; Angulo-Sanchez et al. 2022). *Fomes fasciatus* (Sw.) Cooke and *F. fomentarius* (L.) Fr. are medicinal fungi traditionally used for their anti-inflammatory, antimicrobial and antioxidant properties. *F fomentarius* contains bioactive compounds such as polysaccharides and triterpenoids and shows potential as an immunomodulator. Extracts of *F. fasciatus* also demonstrate antimicrobial and antioxidant effects (McCormick et al. 2013; Gáper et al. 2016; Campi et al. 2024).

The study also identified ten toxic or potentially deadly species (Table 1, Figure 4), among which *Amanita phalloides* (Vaill. ex Fr.) Link and *A. virosa* Bertillon (1866) were confirmed to be lethal. These fungi contain potent toxins, such as amatoxins and virotoxins, emphasising the critical importance of accurate species identification for public health and safety (Garcia et al. 2015; Tavassoli et al. 2019).

Table 1. List of the recorded macro-fungal species in Constantine region, Algeria

Order	Family	Species	Ecology	Property
Agaricales	Agaricaceae	*Agaricus arvensis* Schaeff. (1774)	Saprophyte	Edible/Medicinal
		Agaricus bisporus (J.E.Lange) Imbach (1946)	Saprophyte	Edible/Medicinal
		Agaricus campestris L. (1753)	Saprophyte	Edible/Medicinal
		Agaricus litoralis Wakef. & A.Pearson (1951)	Saprophyte	Edible
		Agaricus silvaticus Schaeff. (1774)	Saprophyte	Edible/Medicinal
		Agaricus semotus Fr. (1863)	Saprophyte	Edible
		Agaricus augustus Fr. (1838)	Saprophyte	Edible
		Agrocybe praecox (Pers.) Fayod (1889)	Saprophyte	Edible/Medicinal
		Chlorophyllum brunneum (Farl. & Burt) Vellinga (2002)	Saprophyte	Edible/Medicinal
		Coprinus comatus (O.F.Müll.) Pers. (1797)	Saprophyte	Edible/Medicinal
		Leucocoprinus leucothites (Vittad.) Redhead (2023)	Saprophyte	Unknown
		Lepiota procera (Scop.) Gray (1821)	Saprophyte	Edible/Medicinal
		Macrolepiota mastoidea (Fr.) Singer (1951)	Saprophyte	Edible/Medicinal
		Macrolepiota zeyheri Heinem. (1962)	Saprophyte	Edible

Table 1. List of the recorded macro-fungal species in Constantine region, Algeria (continued)

Order	Family	Species	Ecology	Property
Agaricales (continued)	Amanitaceae	*Amanita caesarea* (Scop.) Pers. (1801)	Mycorrhizal	Edible
		Amanita citrina Pers. (1797)	Mycorrhizal	Toxic
		Amanita excelsa (Fr.) Bertill. (1866)	Mycorrhizal	Inedible
		Amanita gemmata (Fr.) Bertill. (1866)	Mycorrhizal	Toxic
		Amanita muscaria (L.) Lam. (1783)	Mycorrhizal	Toxic/Medicinal
		Amanita pantherina (DC.) Krombh. (1846)	Mycorrhizal	Toxic/Medicinal
		Amanita phalloides (Vaill. ex Fr.) Link (1833)	Mycorrhizal	Deadly/Medicinal
		Amanita rubescens Pers. (1797)	Mycorrhizal	Edible
		Amanita vaginata (Bull.) Lam. (1783)	Mycorrhizal	Edible
		Amanita virosa Bertillon (1866)	Mycorrhizal	Deadly
		Amanita vittadinii (Moretti) Vittad. (1826)	Saprophyte	Edible
	Bolbitiaceae	*Bolbitius titubans* (Bull.) Fr. (1838)	Saprophyte	Inedible
		Conocybe pulchella (Velen.) Hauskn. & Svrček (1999)	Saprophyte	Inedible
		Panaeolus foenisecii (Pers.) J.Schröt. (1926),	Saprophyte	Inedible
	Clitocybaceae	*Clitocybe fragrans* (With.) P.Kumm. (1871)	Mycorrhizal	Edible
		Clitocybe odora (Bull.) P.Kumm. (1871)	Saprophyte	Edible/Medicinal
	Galeropsidaceae	*Panaeolus papilionaceus* (Bull.) Quél. (1872)	Saprophyte	Inedible
		Panaeolus acuminatus (P.Kumm.) Quél. (1872)	Saprophyte	Toxic/Medicinal
	Hydnangiaceae	*Laccaria laccata* (Scop.) Cooke (1884)	Mycorrhizal	Edible
	Inocybaceae	*Pseudosperma sororium* (Kauffman) Matheny & Esteve-Rav. (2019)	Saprophyte	Toxic
	Lycoperdaceae	*Bovistella utriformis* (Bull.) Demoulin & Rebriev (2017)	Saprophyte	Edible/Medicinal
	Marasmiaceae	*Marasmius oreades* (Bolton) Fr. (1836)	Saprophyte	Edible
	Macrocystidiaceae	*Macrocystidia cucumis* (Pers.) Joss. (1934)	Saprophyte	Unknown
	Omphalotaceae	*Gymnopus brassicolens* (Romagn.) Antonín & Noordel. (1997)	Saprophyte	Unknown/ Medicinal
	Physalacriaceae	*Armillaria mellea* (Vahl) P.Kumm. (1871)	Saprophyte/ Parasite	Edible/Medicinal
	Pleurotaceae	*Hohenbuehelia mastrucata* (Fr.) Singer (1951)	Saprophyte	unknown/ Medicinal
		Pleurotus eryngii (DC.) Quél. (1872)	Saprophyte	Edible/Medicinal
		Pleurotus ostreatus (Jacq.) P.Kumm. (1871)	Saprophyte	Edible/Medicinal
	Pluteaceae	*Pluteus exilis* Singer (1989)	Saprophyte	Edible
		Pluteus salicinus (Pers.) P.Kumm. (1871)	Saprophyte	Toxic
	Psathyrellaceae	*Coprinellus bipellis* (Romagn.) P.Roux, Guy García & Borgarino (2006)	Saprophyte	Inedible/Medicinal

Table 1. List of the recorded macro-fungal species in Constantine region, Algeria (continued)

Order	Family	Species	Ecology	Property
Agaricales (continued)	Psathyrellaceae (continued)	*Coprinellus radians* (Desm.) Vilgalys, Hopple & Jacq. Johnson (2001)	Saprophyte	Unknown/ Medicinal
		Coprinopsis lagopus (Fr.) Redhead, Vilgalys & Moncalvo (2001)	Saprophyte	Unknown/ Medicinal
		Coprinopsis nivea (Pers.) Redhead, Vilgalys & Moncalvo (2001)	Saprophyte	Unknown
		Parasola auricoma (Pat.) Redhead, Vilgalys & Hopple (2001)	Saprophyte	Unknown
		Parasola plicatilis (Curtis) Redhead, Vilgalys & Hopple (2001)	Saprophyte	Inedible
		Psathyrella ammophila (Durieu & Lév.) P.D.Orton (1960)	Saprophyte	Inedible
		Psathyrella bipellis (Quél.) A.H.Sm. (1946)	Saprophyte	Unknown
	Schizophyllaceae	*Schizophyllum commune* Fr. (1815)	Saprophyte/ Parasite	Toxic/Medicinal
	Strophariaceae	*Agrocybe pediades* (Fr.) Fayod (1889)	Saprophyte	Edible
		Agrocybe molesta (Lasch) Singer (1978	Saprophyte	Edible
		Deconica coprophila (Bull.) P.Karst. (1879)	Saprophyte	Unknown
		Pholiota velaglutinosa A.H.Sm. & Hesler (1968)	Saprophyte	Unknown/ Medicinal
	Tricholomataceae	*Lepista nuda* (Bull.) Cooke (1871)	Saprophyte	Edible/Medicinal
		Lepista sordida (Schumach.) Singer (1951)	Saprophyte	Edible/Medicinal
		Tricholoma terreum (Schaeff.) Quél. (1871)	Mycorrhizal	Edible
		Tricholoma batschii Gulden ex Mort.Chr. & Noordel.(1999)	Mycorrhizal	Edible/Medicinal
		Tricholoma pseudonictitans Bon (1983)	Mycorrhizal	Edible/Medicinal
	Tubariaceae	*Cyclocybe cylindracea* (DC.) Vizzini & Angelini (2014)	Saprophyte	Edible
		Tubaria romagnesiana Arnolds (1982)	Saprophyte	Inedible
Auriculariales	Auriculariaceae	*Auricularia auricula-judae* (Bull.) Quél. (1886)	Saprophyte/ Parasite	Edible/Medicinal
		Auricularia mesenterica (Dicks.) Pers. (1822)	Saprophyte/ Parasite	Inedible/Medicinal
Boletales	Diplocystidiaceae	*Astraeus hygrometricus* (Pers.) Morgan (1889)	Mycorrhizal	Inedible/Medicinal
	Suillaceae	*Suillus collinitus* (Fr.) Kuntze (1898)	Mycorrhizal	Edible/Medicinal
Gloeophyllales	Gloeophyllaceae	*Gloeophyllum abietinum* (Bull.) P.Karst. (1882)	Saprophyte	Inedible/Medicinal
		Gloeophyllum sepiarium (Wulfen) P.Karst. (1882)	Saprophyte	Inedible/Medicinal
Hymenochaetales	Hymenochaetaceae	*Fuscoporia gilva* (Schwein.) T.Wagner & M.Fisch. (2002)	Saprophyte/ Parasite	Unknown/ Medicinal
		Porodaedalea pini (Brot.) Murrill (1905)	Parasite	Inedible/Medicinal
Phallales	Phallaceae	*Phallus impudicus* L. (1753)	Saprophyte	Inedible/Medicinal

Table 1. List of the recorded macro-fungal species in Constantine region, Algeria (continued)

Order	Family	Species	Ecology	Property
Polyporales	Cerrenaceae	*Cerrena unicolor* (Bull.) Murrill (1903)	Saprophyte/ Parasite	Inedible/Medicinal
	Fomitopsidaceae	*Fomitopsis pinicola* (Sw.) P.Karst. (1881)	Saprophyte	
	Laetiporaceae	*Laetiporus sulphureus* (Bull.) Murrill (1920)	Saprophyte/ Parasite	Edible/Medicinal
	Polyporaceae	*Coriolopsis gallica* (Fr.) Ryvarden (1973)	Saprophyte/ Parasite	Inedible/Medicinal
		Coriolopsis trogii (Berk.) Domański (1974)	Saprophyte	Unknown/ Medicinal
		Fomes fasciatus (Sw.) Cooke (1885)	Saprophyte/ Parasite	Inedible/Medicinal
		Fomes fomentarius (L.) Fr. (1849)	Saprophyte/ Parasite	Inedible/Medicinal
		Ganoderma applanatum (Pers.) Pat. (1887)	Parasite	Inedible/Medicinal
		Ganoderma orbiforme (Fr.) Ryvarden (2000)	Parasite	Inedible/Medicinal
		Lentinus tigrinus (Bull.) Fr. (1825)	Saprophyte	Edible/Medicinal
		Trametes gibbosa (Pers.) Fr. (1838)	Saprophyte	Inedible/Medicinal
		Trametes pubescens (Schumach.) Pilát (1939)	Saprophyte	Inedible/Medicinal
		Trametes trogii Berk. (1850)	Saprophyte/ Parasite	Inedible/Medicinal
		Trametes villosa (Sw.) Kreisel (1971)	Saprophyte	Inedible/Medicinal
		Trametes versicolor (L.) Lloyd (1921)	Saprophyte	Edible/Medicinal
Russulales	Russulaceae	*Lactarius deliciosus* (L.) Gray (1821)	Mycorrhizal	Edible/Medicinal
	Stereaceae	*Stereum hirsutum* (Willd.) Pers. (1800)	Saprophyte/ Parasite	Inedible/Medicinal

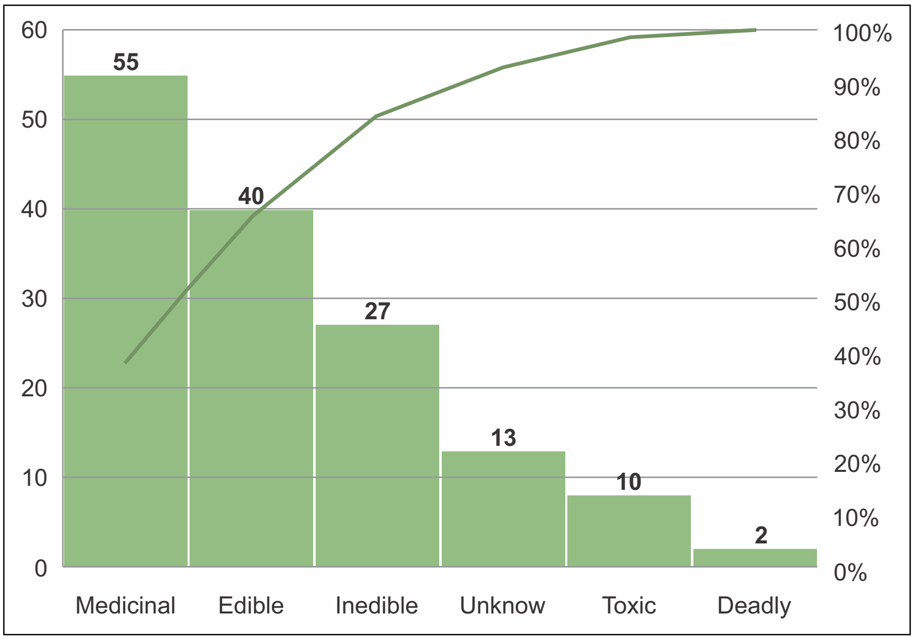

Figure 4. Ecological groups of macrofungi collected in the Djebel El Ouahch Forest, Constantine region, Algeria.

Conclusion

The present study establishes the first documented checklist of macrofungi in the Djebel El Ouahch Forest, northeastern Algeria, providing an essential baseline for future mycological investigations in the region. The recorded diversity demonstrates that this forest represents an important reservoir of macrofungal biodiversity within Mediterranean ecosystems. The occurrence of edible, medicinal and toxic species highlights the ecological and practical relevance of these fungi for biodiversity conservation, public awareness and sustainable resource use. This checklist contributes to improving the current knowledge of fungal distribution in Algeria and supports the need for continued surveys in underexplored habitats. Future studies incorporating seasonal monitoring and complementary identification approaches are recommended to refine species inventories and strengthen regional fungal conservation strategies.

Acknowledgements

This work was supported by the Université des Frères Mentouri, Constantine 1 (UFMC1-Constantine, Algeria). The authors also thank Dr Pierre-Arthur Moreau, Faculty of Pharmacy, Université de Lille, France, for helping to identify some macrofungi.

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