

Mycorrhizal relationship between maritime pine and Aleppo pine with four species of higher fungi of the genera *Suillellus* and *Suillus* in the Ghazaouet littoral, northwestern AlgeriaMimoune SOUNA ^{1,*}, Tarik Mohammed Chaouche ¹, Choukri TEFIANI ¹, Rachid Azzi ¹, Salim Habi ¹¹ Faculty of Natural and Life Sciences, Earth and Universe Sciences, University of Abou Bekr Belkaïd, Tlemcen 13000, Algeria. * Correspondence: mimoun.souna@univ-tlemcen.dz

INTRODUCTION & AIM

Fungi are both allies and rivals of plants, and some are involved in plant symbiosis. Mycorrhizae are symbiotic associations contracted by plant roots with the mycelium of a number of mushrooms for mutual benefit. They are essential for 80% of rooted plants, helping them to absorb mineral elements, improve nutrition and resist water stress. Maritime pine (*Pinus pinaster*) and Aleppo pine (*Pinus halepensis*) belong to the Pinaceae family, and are two-needled conifers, the former characterized by its rapid growth to 30 m, a light species known as thermophilic, heat and humidity are necessary, and the latter also with a remarkable drought tolerance. This study focuses on a contribution to the determination of fungal species living symbiotically with maritime pine and Aleppo pine.

METHOD

Fruit bodies of studied mushrooms were collected during 2021 and 2022, on mycological outings in the Ghazaouet coastline of Algeria near *P. pinaster* and *P. halepensis*.

Macromorphological features were described from fresh Specimens with recognition of macroscopic keys: shape; cap; tubular hymenophores and their organization; internal coating and structure of the stipe; color and texture of the flesh; veil and ring).

The microscopic observation of spores and fungal structures in the fresh state, using reagents such as Lugol and Melzer.

Sections of the mycorrhizae were mounted in cotton blue and observed under a photonic microscope.

RESULTS & DISCUSSION

The outings were devoted to studying the different varieties of mycorrhization between the mushrooms and their host trees, represented by the two varieties of pine in the coastal regions of Ghazaouet. The botanical description of the two pinus species and the mycological features of the associated mushrooms are listed below.

The systemic position of pine

Kingdom: **Plantae**; Subkingdom: **Tracheobionta**; Phylum: **Spermatophytes**; Subphylum: **Gymnosperms**; Class: **Pinopsida**; Order: **Coniferales**; Family: **Pinaceae**; Subfamily: **Pinoideae**; Genus: **Pinus**

Aleppo pine (*Pinus halepensis*)

Conical in habit, then with a rounded or spreading crown, can reach 20 m in height. Its foliage is airy. Its bark is light gray. It is the most drought-tolerant resinous species, but also one of the most easily burned.

Maritime pine (*Pinus pinaster*)

Pyramidal with an irregular habit and crown, can reach 30 m in height. Its trunk is leaning or sinuous. The bark is purple-brown.

S. mediterraneensis (Boletales; Suillaceae)

Mainly found under *Pinus halepensis*. Cap dull yellow, quickly orange-brown. Pores olive-yellow. White stipe punctuated with brown spots. Yellow flesh in cap and bottom of stipe. Spores 9-12 x 4-5 µm.

S. granulatus (Boletales ; Suillaceae)

Reddish-brown to ochraceous-orange cap, uniformly colored. Pores yellow then greenish-yellow, weeping milky drops at first. Stipe whitish to yellowish, punctate at apex. Spores 8-10 x 3.5-4.5 µm.

S. bovinus (Boletales ; Suillaceae)

Under two-needled pines, brownish-yellow to pinkish-beige cap. Olive-yellow pores, typically angular and ample. Stipe ochraceous beige. Spores 8.5-10 x 2.5-4 µm.

CONCLUSION

Four species of basidiomycetes were determined, belonging to two genera: *Suillellus* and *Suillus*. Mycorrhization plays a vital role in the dynamics and survival of forest ecosystems.

FUTURE WORK / REFERENCES

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