

An updated checklist of wood decay fungi in the Maltese Islands.

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1. Introduction

Wood-decaying fungi are very important study subjects for their potential biotechnology applications. They can also create structural damage to wooden structures and to trees, especially older ones with very low level of fitness.

White-rot fungi (WRF) are able to degrade lignin efficiently through lignin-modifying enzymes, in contrast to brown-rot fungi (BRF) which can predominantly degrade cellulose and hemicellulose through cellulase-degrading enzymes. Soft-rot fungi (SRF) differ from brown-rot and white-rot by growing mainly inside the S2 layer of the cell wall in wood forming tissue and colonize via the wood rays.

Studies of wood decay fungal diversity on trees growing in the Maltese Islands are limited to incomplete records described by handful of authors. The aim of the project was to provide an updated checklist of confirmed records of wood decay fungi occurring on indigenous and exotic phanerophytes.

2. Material and Methods

Several surveys have been carried out during the rainy season across the Maltese Islands. Historical as well as public gardens were also surveyed with a preference to monumental trees. Macro- and micro-morphological identification was carried out on mature basidiocarps.

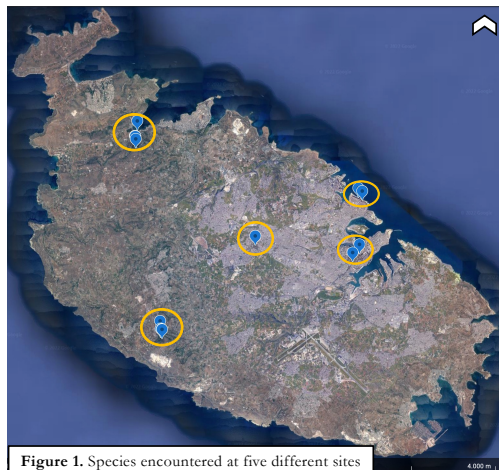


Figure 1. Species encountered at five different sites



Tamarix africana Poir. infected with *Inocutis tamaricis* (Pat.) Fiasson & Niemelä (WRF)

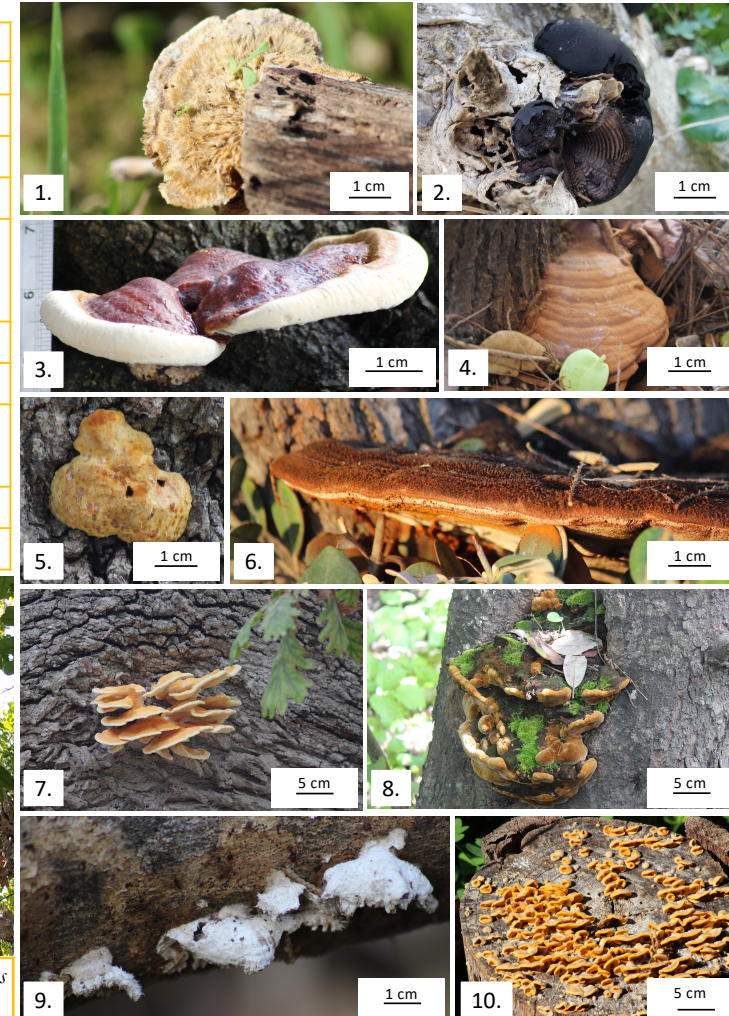


Quercus robur L. infected with *Laetiporus sulphureus* (Bull.) Murrill (BRF)

3. Results

Wood decay fungi were recorded at 5 different locations across the Maltese Islands shown in Figure 1. A total of 10 species were recorded on 13 different phanerophytes or their wooden stumps, as shown in the Table 1. Of these 10 species, one is a new records (*) for the Maltese Islands, namely *Skeletocutis amorpha*.

Table 1	Wood decay fungi	Plant host/Substrate	Decay type
1.	<i>Corioliopsis</i> spp.	Dead wood in ruderals	White-rot Martinez (2014)
2.	<i>Daldinia concentrica</i> (Bolton) Ces. & De Not.	<i>Fraxinus angustifolia</i> Vahl	Soft-rot Chen et al. 2004
3.	<i>Ganoderma lucidum</i> (Curtis) P. Karst.	<i>Ceratonia siliqua</i> L.	White-rot Schmidt (2006)
4.	<i>Ganoderma australe</i> (Fr.) Pat.	<i>Tamarix africana</i> Poir.	White-rot Schmidt (2006)
5.	<i>Pseudoinonotus dryadeus</i> (Pers.) T. Wagner & M. Fisch	<i>Quercus ilex</i> L. <i>Carya illinoensis</i> (Wangenh.) K.Koch <i>Casuarina equisetifolia</i> L. <i>Harpullia pendula</i> Planch. ex F. Muell. <i>Sapindus Saponaria</i> L.	White-rot Schmidt (2006)
6.	<i>Inocutis tamaricis</i> (Pat.) Fiasson & Niemelä	<i>Tamarix africana</i> Poir.	White-rot Schmidt (2006)
7.	<i>Laetiporus sulphureus</i> (Bull.) Murrill	<i>Quercus robur</i> L.	Brown-rot Schmidt (2006)
8.	<i>Fuscoporia torulosa</i> (Pers.) T. Wagner & M. Fisch.	<i>Ceratonia siliqua</i> L. <i>Carya illinoensis</i> (Wangenh.) K.Koch Dead wood of <i>Olea europaea</i> s.l. in public garden	White-rot Bernicchia (2005)
9.	<i>Schizophyllum commune</i> Fr.	Dead wood in woodland	White-rot Schmidt (2006)
10.	<i>Skeletocutis amorpha</i> * (Fr.) Kotl. & Pouzar	<i>Acacia saligna</i> (Labill.) Wendl.	White-rot Ji (2019)



References

- Bernicchia A., Gorjón S.P. (202-). Polypore of the Mediterranean Region. Romar pp. 904
 Pignatti, S. 1982: Flora d'Italia, 1-3. – Bologna.
 Sammut C. (2022). Checklist of fungi in the Maltese Islands. In press
 Schmidt O. (2006). Wood and Tree Fungi. Biology, damage, protection, and use. Springer Pp. 336

4. Conclusion

Within the present research, 10 species have been identified through macro- and micro-morphological features however genetic studies are envisaged in order to better characterize the ecotypes. More attention should be given to the occurrence of wood decaying fungi, not only to preserve monumental trees but also from a health and safety perspective, especially for infected trees in public areas.