



University of Genova

**Department of Earth, Environmental
and Life Sciences**

**Doctorate Course in Earth and
Environmental Science and
Technology**

Università degli Studi di Genova



Dottorato in Scienze e Tecnologie
per l'Ambiente e il Territorio

Curriculum in biology applied to agriculture and the environment

Research Theme n. 3

Titolo (Italiano) : Funghi come biodeteriogeni del legno Title (inglese) Fungi as wood biodeteriogens
Tutor (name and email) and eventual co-tutor Simone Di Piazza simone.dipiazza@unige.it
Program description including the formation program abroad (Inglese) Degradation, of complex molecules such as lignin and cellulose, is key trait of several fungi. Wood biodegradative activity is the basis of natural biogeochemical cycles fundamental for the health of the planet, particularly the carbon cycle. Everything changes when this activity takes place for example on artefacts or works of art. In such cases, due to the negative effects, the term used is biodeterioration. In-depth knowledge of lignicolous fungal species and mechanisms that generate biodeterioration is the basis for the protection of wooden cultural heritage. The aim of the project is to implement the CoID-JRU Mirri collection with fungal strains isolated from contaminated and/or potentially contaminated woods or wooden objects. The isolated strains will be characterized by polyphasic approach and stored in CoID collection. Moreover, their biodeteriogenic activity will be evaluated on different wood species and in vitro test will be carried out to find new natural product to stop their proliferation. During the project, the candidate will spend a period of 6 month abroad within a framework of collaboration with international research group such as Westerdijk Fungal Biodiversity Institute (the Netherlands) and Institute for Natural Sciences and Technology in the Arts (Austria).
Financial support
Tutor's publications (max 3) DI PIAZZA S., BENVENUTI M., DAMONTE G., CECCHI G., MARIOTTI M.G., ZOTTI M. 2021. Fungi and Circular Economy: Pleurotus ostreatus Grown on a Substrate with Agricultural Waste of Lavender, and Its Promising Biochemical Profile. Recycling 2021, 6, 40. Doi: https://doi.org/10.3390/recycling6020040 DI PIAZZA S., HOUBRAKEN J., MEIJER M., CECCHI G., KRAAK B., ROSA E., ZOTTI M. 2020. Thermotolerant and thermophilic mycobiota in different steps of compost maturation. Microorganisms, 2020, Open access 8(6) 880: 1-9.