



UNIVERSITÀ
DEGLI STUDI DI BARI
ALDO MORO

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Master course

Biotechnology for Medicinal and Aromatic Plants - BiotecMAP

Department of Agriculture and Environmental Science
University of Bari Aldo Moro

Coordinator: prof. Giuseppe De Mastro



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The Master Course

The course provides a solid scientific and technological base for studying and work with Master's degree in **Biotechnology in Medicinal and Aromatic Plants (BioTecMAP)** and also emphasizes opportunities for bio-entrepreneurship.



Objectives:

To provide the necessary background in the current and emerging scientific and technology areas of biosciences and biotechnologies relating to natural products (MAP);

To provide the necessary skills for the formation of a qualified scientific and/or professional career;

To design, develop and implement projects for technological development and research, associated with the medicinal and aromatic plant valorization.



Structure of the course

duration of 12 months for a total of 1,500 hours of training (60 credits), divided as follows:

- 725 hours - classroom teaching including lectures, seminars, technical visits and exams;
- 400 hours - individual study;
- 300 hours - stage
- 75 hours - preparation for the final exam.

certificate of **Master in Biotechnology for Medicinal and Aromatic Plants** will be released by the University of Bari "Aldo Moro"



Partner companies for training and stages

<i>San Demetrio Company S.r.l. - SPECCHIA (LE)</i>
<i>CRA - FSO Research Unit for Floriculture and Ornamental Species - Sanremo</i>
<i>National Research Council – Trees and Timber Institute - Sesto Fiorentino (FI)</i>
<i>National Research Council - Institute of Plant Protection - Section of Florence - Sesto Fiorentino (FI)</i>
<i>ICEA Institute for Ethical and Environmental Certification - Bologna</i>
<i>Lab Instruments S.r.l - CASTELLANA GROTTA (BA)</i>



The Master course will be divided in three main moduls

Tissue culture and micropropagation: Technology and Application **10 materials - 20 ECTS - 500 hours**

Biopesticides: Application and Mechanism of Action **12 materials - 20 ECTS - 500 hours**

Extraction, Purification and Characterization of bioactive compounds from plants **9 materials - 20 ECTS – 500 hours**



Modul: Tissue culture - micropropagation: Technology and Application

Responsible Ruta Claudia

Name of the Material	ECTS	Lecturer's name
<i>Plant Reproduction by Tissue Culture Techniques</i>	4,00	Ruta Claudia
<i>In vitro culture techniques</i>	2,00	Morone Fortunato Irene
<i>Application of in vitro culture in plant pathology</i>	1,50	Bottalico Giovanna
<i>Application of mycorrhizal inoculants to medicinal plants</i>	2,00	Campanelli Angela
<i>Production of secondary metabolites through tissue and cell cultures</i>	4,00	Ruta Claudia
<i>Genetical and morphological compliance of material from micropropagation</i>	1,00	Ricciardi Luigi
<i>In vitro genetic manipulation of medicinal and aromatic plants</i>	1,50	Montemurro Cinzia
<i>Molecular methods for the analysis and characterization of the genetic variability in medicinal and aromatic plants</i>	1,00	Lotti Concetta
<i>Analytical methods for the extraction and identification of secondary metabolite production in 'in vitro' plant cell cultures</i>	2,00	Avato Pinarosa
<i>Plant engineering to improve the efficiency of in vitro production</i>	1,00	Scarascia Mugnozza Giacomo
TOTAL	20,00	



Modul: Biopesticides - Application and Mechanism of Action

Responsible De Mastro Giuseppe

Name of the Material	ECTS	Lecturer's name
<i>Biopesticides of microbial origin</i>	1,00	Nigro Franco
<i>Biopesticides of plant origin</i>	2,00	De Mastro Giuseppe
<i>Transgenic plants and biopesticides</i>	1,00	Pavan Stefano
<i>The cultivation of plants for biocidal use</i>	1,00	Tedone Luigi
<i>Natural insecticides: application and mode of action</i>	1,50	De Lillo Enrico
<i>Natural fungicides: application and mode of action</i>	1,50	Nigro Franco
<i>Natural nematocides: application and mode of action</i>	2,50	D'Addabbo Trifone
<i>Natural herbicides: application and mode of action</i>	1,50	De Mastro Giuseppe
<i>Phytochemistry of plants with biocidal action</i>	1,50	Avato Pinarosa
<i>Extraction, purification and characterization of natural substances of plant origin for biocidal use</i>	3,00	Argentieri Maria Pia
<i>Industrial Processes of plants for the production and processing of natural substances of biocidal effect</i>	1,00	Bianchi Biagio
<i>Characterization of bio-pesticides and residue analysis</i>	2,50	Fanizzi Paolo
TOTAL	20,00	



Modul: Extraction, Purification and Characterization of bioactive compounds from plants

Responsible Avato Pinarosa

Name of the Material	ECTS	Lecturer's name
<i>Phytochemistry of bioactive compounds</i>	2,00	Avato Pinarosa
<i>Extraction and purification of bioactive compounds from plants</i>	2,50	Argentieri Maria Pia
<i>Analytical methods for qualitative and quantitative determinations of bioactive compounds</i>	3,00	Argentieri Maria Pia
<i>Innovative analytical techniques for the structural characterization of bioactive compounds</i>	2,50	Avato Pinarosa
<i>Case studies: structure-activity relationships</i>	1,00	Avato Pinarosa
<i>Bioactive compounds and environmental risks</i>	2,00	Cavoski Ivana
<i>Allelopathic interactions</i>	2,00	Loffredo Elisabetta
<i>Determinations of active bio-composites in the soil</i>	3,00	Brunetti Gennaro
<i>Fate of bioactive compounds in soil and water</i>	2,00	Loffredo Elisabetta
TOTAL	20,00	



Requirements for admission

Evaluation criteria

Interview

degree of knowledge of the English language
(score up to 20 points)

Evaluation of the *curriculum vitae*

university degree, relevant working experience, other qualifications
eligible
(score up to 30 points)

The minimum score for admission to the course is equal to 30/50



Career opportunities

The aim of the Master is to form professional figures with expertise skills in the field of biotechnology applied to the medicinal and aromatic plants, prepared to operate in public and private Institutions of agro-food sector, analysis laboratories , the herbal and pharmaceutical sector, and the use of natural products of plant origin (greenchemicals); help Governors to modify regulations concerning collection, preservation and utilization of MAPs.

In recent years, there has been a significant expansion of all areas related to biotechnologies and sustainable exploitation of medicinal plants. Hence the demand for highly qualified personnel, whose training costs are huge.



Career opportunities

The training program of this master is designed to prepare highly qualified personnel in the field of "Biotechnology for Medicinal and Aromatic Plants (BiotecMAP)" able to apply the best techniques through the applications of tissue culture and micropropagation of MAPs as well as the bioactive compounds by their extraction, isolation and characterization.

The purpose of the master is also preparing staff that can not only use all the techniques for handling biotechnology, but also techniques for lowering the environmental impacts in the framework of sustainability and environmental protection through the use of Biopesticides.



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Call to apply for admission

online announcement on the official site of the
university of Bari

<http://www.uniba.it/offerta-formativa/master-universitari/master-2013-2013>

expected date for:
admission
start of the master

half of October
end of November



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Contact person:

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Information



Location: Bari - Regione Puglia - Southern Italy

