



## Federica Betuzzi

**Date of birth:** 25/02/1997 | **Nationality:** Italian | **Gender:** Female | **Phone number:** (+39) 3406597331 (Mobile) | **Email address:** [federica.betuzzi@edu.unige.it](mailto:federica.betuzzi@edu.unige.it) | **Email address:** [federicabetuzzi@pec.it](mailto:federicabetuzzi@pec.it) | **Skype:** Federica Betuzzi (federicabetuzzi@gmail.com) | **Address:** Via Rovereto 8/5, 16157, GENOVA, Italy (Home)

### ABOUT ME

I'm deeply interested in Botany and during my academic years I've studied various disciplines within this field: Plant Biology and Histology, Forensic Botany, Phytoalimurgy, Biology of Medicinal Plants, and Ethnobotany. Currently, I'm a PhD student in Biology Applied to Agriculture and Environment at the University of Genoa, with a project focused on the enhancement of agri-food products and their by-products to promote circular economy.

I'm reliable, disciplined, meticulous, and ambitious, values that allow me to deal with each situation competently and professionally, maintaining a constant dedication.

### WORK EXPERIENCE

01/11/2023 – CURRENT Genoa , Italy

**PHD STUDENT IN SCIENCE AND TECHNOLOGIES FOR THE EARTH AND ENVIRONMENT - CURRICULUM BIOLOGY APPLIED TO AGRICULTURE AND ENVIRONMENT** UNIVERSITY OF GENOA - DEPARTMENT FOR EARTH, ENVIRONMENT AND LIFE SCIENCES (DISTAV)

The aim of my PhD project is to characterize some typical agri-food products from Liguria Region, also encompassing the potential reuse of the by-products generated during both cultivation and processing for innovative applications (such as nutraceuticals, animal feed, cosmetics, and products for organic farming). In particular, my study focuses on various native cultivars of *Ocimum basilicum* 'Genovese' and on *Olea europaea* 'Lavagnina'.

In addition, I provide assistance to thesis students, laboratory activities, field trips and exams. I am a supervisor of two master's theses.

**Address** Corso Europa 26, 16132, Genoa , Italy

16/12/2024 – CURRENT Genoa , Italy

**ASSIGNMENT OF EXPERT TEACHER PNRR MISSION 4 - STEM SKILLS (D.M. NO. 65/2023)**

I have been selected for an individual assignment as an expert teacher at Istituto Scolastico Comprensivo Maddalena-Bertani (Salita Battistine, 12 - 16125 Genoa).

I am conducting laboratory activities at a fourth grade class at De Scalzi-Polacco Primary School to highlight the importance of science disciplines and especially the active presence of women in STEM disciplines. In particular, I designed five laboratories (tot. 10 h) related to the world of plants (plant cell and DNA, photosynthesis, macro- and microscopic structure of various plant species, pollen, fruits/seeds).

24/10/2024 – 03/11/2024 Genoa , Italy

**SCIENTIFIC POPULARIZER GENOA SCIENCE FESTIVAL**

Assistance to the laboratory "Fantastic Seeds and Where to Find Them - The Conquest of Plants" at the Genoa Botanical Garden.

I explained to kindergarten and primary school pupils the morphology of a seed and how it can be dispersed, showing examples of various types of seeds. Finally, I helped the children create a 'seed bomb' to take home.

26/10/2023 – 05/11/2023 Genoa, Italy

**SCIENTIFIC POPULARIZER GENOA SCIENCE FESTIVAL**

Assistance to the laboratory "The use of insects and plants in forensic investigations".

I explained to the public the concepts of Forensic Science, Forensic Botany and Forensic Entomology, highlighting that also plants and insects can represent important "footprints" useful to reconstruct a criminal event. I helped children and adults in the microscopic identification of different samples of pollen and insects, taken from hypothetical clothing

of a victim with the help of tweezers and scotch. I supported the various groups in the analysis of data and in the evaluation of the most likely hypothesis, applying a probabilistic calculation.

03/06/2023 – 03/06/2023 Ovada (AL), Italy

**SCIENTIFIC POPULARIZER ASSOCIAZIONE DIDATTICA MUSEALE (ADM) - NATURAL HISTORY MUSEUM GIACOMO DORIA**

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I led a laboratory called "Pollens under the Lens" within the context of "Fiorissima" Market Exhibition. I showed the participants fresh pollen with the help of a portable microscope (Diple - SmartMicroOptics).

**Address** Via Brigata Liguria 9, 16121, Ovada (AL), Italy

03/04/2023 – 31/10/2023 Genoa , Italy

**POST-GRADUATE INTERNSHIP (D.M. 752/2021) GCGURU**

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I have carried out a research aimed at enriching the knowledge of Genoese grapevines and wines, with particular attention to the Valpolcevera CDO. The project, promoted by Enoteca Regionale della Liguria, was overseen by Dr. Giulio Cataudella (gCguru), Simona Venni (member of the Municipality of Genoa representing Enoteca Regionale della Liguria) and Professor Laura Cornara (teacher at University of Genoa, teaching tutor of the internship).

**Address** Via Lodovico Antonio Muratori 5, 16152, Genoa , Italy

14/06/2021 – 06/07/2021 Genoa , Italy

**ASSISTANCE TO UNIVERSITY LABORATORY ACTIVITIES UNIVERSITY OF GENOA - DISTAV**

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During the Summer School of Applied and Experimental Biology degree course (University of Genoa), I joined Professors in helping students in practical laboratory activities, such as:

- Preparation of slides of plant material to be observed under optical microscope (leaf epidermis and pollen).
- Realization of known concentrations of Ponceau Red (serial dilutions) to be read at the spectrophotometer, in order to realize a calibration line and then rise to an unknown concentration.
- Observation of larvae and puparies under the stereomicroscope.

**Address** Corso Europa 26 , 16132, Genoa , Italy

## ● EDUCATION AND TRAINING

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19/10/2020 – 21/10/2022 Genoa , Italy

**MSC DEGREE IN APPLIED AND EXPERIMENTAL BIOLOGY (FORENSIC CURRICULUM) University of Genoa - DISTAV**

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The thesis project involved the pharmacognostic characterization of toxic or psychoactive plants of forensic interest, which have caused both accidental and voluntary intoxications (spontaneous collection, contamination/adulteration, abuse, crime). Thanks to the agreement between Distav and the Department of Chemical, Biological, Pharmaceutical and Environmental Sciences of the University of Messina, I was able to spend a week at the Laboratory of Pharmacology and Toxicology of UniMe to carry out the phytochemical analyses of the plants under study. Overall, the laboratory activities allowed me to learn about plant histology, optical and electron scanning microscopy, spectrophotometry and chromatography.

**Address** Corso Europa 26 , 16132, Genoa , Italy | **Website** <https://corsi.unige.it/corsi/11158/> | **Final grade** 110/110 and praise |

**Level in EQF** EQF level 7 | **Type of credits** CFU | **Number of credits** 120 |

**Thesis** "Food poisoning: confusion between edible plants and toxic plants"

26/09/2016 – 23/10/2019 Genoa, Italy

**BSC DEGREE IN BIOLOGICAL SCIENCES University of Genoa - DISTAV**

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The thesis project involved the study of some poisonous plants for animals, representative of different contexts and environments.

**Address** Corso Europa 26 , 16132, Genoa, Italy | **Website** <https://corsi.unige.it/corsi/8762/> | **Final grade** 110/110 and praise |

**Level in EQF** EQF level 6 | **Type of credits** CFU | **Number of credits** 180 |

**Thesis** "Application of Forensic Botany to the veterinary field: toxic plants for animals"

**Address** Via Ai Cantieri 2, 16158, Genoa , Italy | **Final grade** 88/100 | **Level in EQF** EQF level 4 |**Thesis** "The scientific investigation at the crime scene"**LANGUAGE SKILLS**Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>ENGLISH (FIRST CERTIFICATE)</b>	B2	B2	B2	B2	B2

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user***DIGITAL SKILLS**

Microsoft Office package: Microsoft Word, Excel, PowerPoint, Access | Image J (basics) | SPSS (basics) | R (basics) | ToupView | Leica Application Suite (LAS)

**ORGANISATIONAL SKILLS****Excellent management and planning skills.**

During my training and work experience, I gained teamwork skills, critically proposing and evaluating ideas and projects. In addition, I'm able to organize my work efficiently, managing several assignments at the same time and respecting the deadlines. I've also developed a good resistance to stress, as well as the ability to face challenges with determination, keeping calm even in complex situations.

**COMMUNICATION AND INTERPERSONAL SKILLS****Excellent relational and public speaking skills.**

I have a natural predisposition to empathy and understanding. Within any working group, I'm always ready to collaborate and contribute to the achievement of common goals. I'm able to speak in public without any problems thanks to my experience as a singer and scientific popularizer. I can express my ideas clearly, adapting my communication style to the target audience, ensuring that the message is understood and received in the best way.

**COURSES**

21/01/2025 – 18/02/2025

**Introductory Course in Melissopalinalogy**

I chose to participate in this online course, organised by CREA, to learn about the pollen analysis of honey.

14/11/2024 – 12/12/2024

**Introduction to vegetation data analysis with R**

Thanks to this workshop, organized by the Italian Botanical Society, I acquired basic skills to use the R software and to perform multivariate analyses of community ecological data.

24/09/2024 – 26/09/2024

**Summer School SBI "New genomic techniques in plant science" - University of Turin**

The course, focused on the CRISPR-Cas9 technique, took place at the Department of Life Sciences and Systems Biology. In particular, I attended theoretical lectures, carried out practical activities in the laboratory and bioinformatics exercises, under the guidance of teachers and PhD students who were experts in the field.

29/07/2024 – 01/08/2024

### **Introduction to Raman spectroscopy**

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I chose to attend this course, delivered as part of my PhD course, to learn the basics of Raman spectroscopy, including practical sessions that allowed me to become familiar with the instrument.

28/02/2024 – 05/06/2024

### **Basics of applied statistics and probability: applications with R**

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I attended this course, delivered as part of my PhD program, which covers the basics of probability and statistics from a theoretical and practical perspective, also using the software R (discrete vs continuous random variables, discrete and continuous probability distributions, major statistical descriptors, uncertainty vs variability, statistical hypothesis tests, basics of regression analysis, introduction to stochastic processes, fundamental uni- and multi-variate analyses such as one-way and multi-way ANOVA, cluster analysis and ordination -PCA and MDS- and multivariate hypothesis testing -PERMANOVA).

01/12/2023 – 19/01/2024

### **Development of plants of food interest**

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I chose to attend this course to acquire knowledge on: plants for food and agriculture and the historical path of their domestication, the Italian legislation on agrobiodiversity, ancient varieties of food interest, bio-fortification techniques to improve plants nutritional quality.

25/10/2023 – 26/09/2024

### **Focus on the invisible - Microscopy school (Basic and Advanced levels)**

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I chose to attend this course promoted by Fondazione Golinelli and G-LAB, and delivered in English, to acquire theoretical skills regarding the functioning of microscopes and the digital imaging techniques. This course has been awarded at the Deep Tech Talent Training Prize, an initiative sponsored by the European Institute of Innovation and Technology (EIT), winning the first prize in the Life Sciences and Green Technologies area.

10/11/2022 – 09/03/2024

### **My English School**

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I've attended this course, talking with native speakers, to improve my English knowledge.

17/02/2021 – 09/03/2021

### **2030 Agenda for Sustainable Development**

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I chose to attend this course because I'm deeply interested in the principle of environmental, social and economic sustainability to preserve and protect the planet.

## ● **CERTIFICATIONS**

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16/11/2023

### **Professional License to Practice as a Biologist - FNOB (mark: 50/50)**

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10/07/2020

### **Acquisition of the 24 credits in the anthropo-psycho-pedagogical disciplines for teaching activities, according to DL 59/2017 and DM 616/2017**

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25/01/2016

### **FCE First Certificate in English (Cambridge University Press and Assessment English)**

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## ● **CONFERENCES AND SEMINARS**

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19/12/2023 – 19/12/2023 Distav, Corso Europa 26 (GE)

### **Seminar for UnigeSenior**

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I presented a two-hour lecture entitled "Enhancing Genoese viticulture: from origins to new applications" for UniGeSenior students (Mathematical, Physical and Natural Sciences Area).

## ● EDUCATIONAL EVENTS

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23/05/2024

### Participation at Bioeconomy Day (Genoa, Liguria)

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This event was organized by the SPRING National Cluster. Several researchers from the PNRR National Center "Agritech" and companies operating in the AgriFood sector have shown their activities and results to promote the circular bioeconomy in agriculture.

09/05/2024 – 10/05/2024

### Participation at Spices & Herbs Global Expo - Macfrut 2024 (Rimini, Emilia Romagna)

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This exhibition event was dedicated to officinal plants sector (e.g., technologies for the primary processing of medicinal plants, development of the international spice market). I attended practical activities (steam distillation, ultrasonic extraction) and sensory tests for the identification of a fresh plant, a dried plant and an essential oil.

07/05/2024

### Participation at the regional pre-selection of FameLab (Liguria, Genoa)

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I presented a 3-minute popularized talk entitled "The Missing Link" related to the circular economy and the recovery of bioactive compounds from plant by-products.

22/05/2023

### Participation at Mare & Mosto - Le vigne sospese (Sestri Levante, Liguria)

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This event, organized by AIS Liguria, the Municipality of Sestri Levante and Liguria Region, was dedicated to wines and oils labelled with the PDO made in Liguria, with the presence of local producers.

## ● NETWORKS AND MEMBERSHIPS

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11/2024 – CURRENT

### Organising committee of CYBO (Conference of Young Botanists)

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01/03/2024 – CURRENT

### Italian Society of Phytotherapy

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12/07/2024 – CURRENT

### Italian Botanical Society

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## ● DRIVING LICENCE

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Driving Licence: B

## ● PUBLICATIONS

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### [Article on international scientific journal](#)

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**Betuzzi F**, Campioli D, Malaspina P, Rapallo F, Bottino G, Scrigna G, Minuto G, Cornara L, **2025**. Morphological and Phytochemical Characterization of Old Ligurian Basil Accessions: Recovery of Old Biodiversity for Future Exploitation. *Plants*, 14(4):553.

### [Article on international scientific journal](#)

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Copetta A, Marchioni I, Najar B, Bazzicalupo M, Frigerio J, **Betuzzi F**, Ruffoni B, Pistelli L, Cornara L, Pistelli L, **2024**. Micromorphological Features, DNA Barcoding and Nutraceutical Compounds of Two Edible Flowers: *Petunia × hybrida* and *Verbena bonariensis*. *Open Agric J*, 18.

### [Article on international scientific journal](#)

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Bazzicalupo M, **Betuzzi F**, Frigerio J, Nissim WG, Rapallo F, Ruffoni B, Cornara L, Copetta A, **2024**. Characterization of the floral traits, pollen micromorphology and DNA barcoding of the edible flowers from three basil taxa (Lamiaceae). *Genet Resour Crop Evol*.

### [Article on international scientific journal](#)

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Malaspina P, Ingegneri M, **Betuzzi F**, Di Gristina E, Cornara L, Trombetta D, Smeriglio A, **2024**. Beyond the Scent: New Evidence about Micromorphological, Phytochemical and Biological Features of *Plumeria rubra* 'Tonda Palermitana' (Apocynaceae). *Plants*, 13(17):2479.

### [Article on international scientific journal](#)

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Smeriglio A, Ingegneri M, Germanò MP, Miori L, Battistini G, **Betuzzi F**, Malaspina P, Trombetta D, Cornara L, **2024**. Pharmacognostic Evaluation of *Monarda didyma* L. Growing in Trentino (Northern Italy) for Cosmeceutical Applications. *Plants*, 13(1):112.

### [Article on international scientific journal](#)

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Cornara L, Malaspina P, **Betuzzi F**, Di Gristina E, D'Arrigo M, Ingegneri M, Trombetta D, Smeriglio A, **2023**. The Influence of Peco-Climatic Conditions on the Micromorphological, Phytochemical Features, and Biological Properties of Leaves of *Saponaria sicula* Raf. *Int J Mol Sci*, 24(14):11693.

### [Article on international scientific journal](#)

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Malaspina P, **Betuzzi F**, Ingegneri M, Smeriglio A, Cornara L, Trombetta D, **2022**. Risk of Poisoning from Garden Plants: Misidentification between Laurel and Cherry Laurel. *Toxins*, 14, 726.

### [Poster in conference proceedings](#)

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**Betuzzi F**, Capuzzi E, Micaletti C, Bajona E, Frigerio J, Cornara L, **2025**. Microscopy coupled with DNA barcoding-based analysis as diagnostic tools to identify toxic plants. In: Conference of Young Botanists (CYBO), 5-7 February, Genova, Italy.

Award: 3rd Poster prize

### [Poster in conference proceedings](#)

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**Betuzzi F**, Campioli D, Malaspina P, Rapallo F, Bottino G, Scrigna G, Minuto G, Cornara L, **2024**. Study of old Ligurian cultivars of *Ocimum basilicum* L. by micromorphology and VOCs analyses: from characterization to conservation strategies. In: 119° Congress of the Italian Botanical Society, 11-13 September, Teramo, Italy.

### [Abstract in conference proceedings](#)

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**Betuzzi F**, Malaspina P, Cornara L, Polito F, De Feo V, **2024**. Caratterizzazione e rivalorizzazione delle foglie di potatura di *Olea europaea* L. cv. 'Lavagnina' per applicazioni in campo cosmetico. In: Piante Medicinali, 23 (1-2). XXXII Congress of the Italian Society of Phytotherapy & XIV SYRP, 12-14 April 2024, Parma, Italy.

### [Poster in conference proceedings](#)

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Malaspina P, Smeriglio A, Ingegneri M, **Betuzzi F**, Di Gristina E, Trombetta D, Cornara L, **2024**. Pharmacognostic study of the rare *Saponaria sicula* Raf. in relation to different pedo-climatic conditions. In: The 3rd International Electronic Conference on Plant Sciences, 15-17 January 2024, online.

### [Abstract in conference proceedings](#)

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**Betuzzi F**, Campioli D, Venere E, Malaspina P, Cornara L, **2024**. Valorizzazione di cultivar locali di prodotti tipici dell'agricoltura ligure. In: Notiziario della Società Botanica Italiana, 8(2). Scientific meeting of the Italian Botanical Society - Ligurian Section, 17 November 2023.

### [Poster in conference proceedings](#)

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Ingegneri M, Malaspina P, **Betuzzi F**, Di Gristina E, Cornara L, Trombetta D, Smeriglio A, **2023**. Preliminary investigation about morpho-anatomical and phytochemical features and antioxidant activity of leaves and flowers from Sicilian *Plumeria rubra* L. cv. "Classica palermitana". In: 1° Congresso intersocietà sui prodotti vegetali per la salute, organized by Società Italiana di Farmacognosia, Società Italiana di Fitochimica, Società Italiana di Farmacologia, Società Italiana di Fitoterapia, and Gruppo Piante Officinali della Società Botanica italiana, 15-17 June 2023, Padova, Italy.

### [Abstract in conference proceedings](#)

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**Betuzzi F**, Cornara L, **2023**. Intossicazioni alimentari: confusione tra piante commestibili e piante tossiche. In: Notiziario della Società Botanica Italiana 7 (2): 273-280. Scientific meeting of the Italian Botanical Society - Ligurian Section, 18 November 2022.

## Abstract in conference proceedings

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Malaspina P, Cornara L, **Betuzzi F**, Di Gristina E, Ingegneri M, Trombetta D, Smeriglio A, **2023**. Anatomical and phytochemical comparison between leaves of the rare *Saponaria sicula* Raf. growing in two different sicilian sites. In: Abstracts & Proceedings book (pag. 89) of the 9th International Mediterranean Symposium on Medicinal and Aromatic Plants (MESMAP-9), 3-5 May 2023, Ankara, Turkey.

## Video Abstract in conference proceedings

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Malaspina P, **Betuzzi F**, Danna C, Smeriglio A, Trombetta D, Cornara L, **2021**. Safe and poisonous garden plants: pharmacognostic comparison between leaves of *Laurus nobilis* L. and *Prunus laurocerasus* L. In: 116° Congress of the Italian Botanical Society, VII International Plant Science Conference (IPSC), online, 8-10 September 2021, page 33. Link to the video abstract: <https://drive.google.com/file/d/13kNGSh1i6OML76i6osUjMJYaxAQ5PXhr/view>

## Abstract in conference proceedings

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**Betuzzi F**, Cornara L, **2021**. Application of Forensic Botany to Veterinary Medicine. In: Notiziario della Società Botanica Italiana, 5 (2): 87-184, page 114. Conference of Young Botanists (CYBO), 6-7 February 2020, Genoa, Italy.

## ● **AWARDS**

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07/02/2025

### **Winner 3rd Poster prize award**

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Betuzzi F, Capuzzi E, Micaletti C, Bajona E, Frigerio J, Cornara L, 2025. Microscopy coupled with DNA barcoding-based analysis as diagnostic tools to identify toxic plants. In: Conference of Young Botanists (CYBO), 5-7 February, Genova, Italy.

27/06/2024

### **Scholarship winner for participation in the 119th Congress of the Italian Botanical Society (11-13 September 2024, Teramo)**

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27/05/2024 - CURRENT

### **Winner of PNRR Call for Proposals Mission 4 - Actions to strengthen STEM skills and multilingualism (M.D. no. 65/2023)**

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11/09/2023 - CURRENT

### **PhD Competition XXXIX cycle (Science and Technologies for the Earth and Environment - Curriculum Biology applied to Agriculture and Environment) - D.R. n. 2723 del 9/06/2023**

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03/04/2023 - 31/10/2023

### **Post-graduate internship competition organized by the University of Genoa (D.M. 752/2021, D.R. 4403 14/10/2022)**

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*I declare that what reported in this curriculum is true pursuant to the D.P.R. 445/2000. I authorize the processing of personal data contained in my curriculum vitae based on art. 13 of Legislative Decree 196/2003 and art. 13 GDPR 679/16.*

*Federica Betuzzi*

Genoa, 2025

Federica Betuzzi