



Valentina Ubertini

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WORK EXPERIENCE

SCHOLARSHIP

University of Tuscia, Department of Ecological and Biological sciences [01/06/2024 – 31/10/2024]

City: Viterbo | Country: Italy

Field of study: Organic Chemistry.

Post graduate scholarship, financed by BIOPLAST project, on the following topic: "Preparation of mixtures containing biofillers"

RESEARCH FELLOW

University of Tuscia, Department of Ecological and Biological sciences [01/06/2023 – 31/05/2024]

City: Viterbo | Country: Italy

Field of study: Organic Chemistry.

Post graduate research grant, financed by EXO-MARS project, on the following topic: "Development of Martian prebiotic models based on irradiation of chemical precursors in the presence of minerals".

EDUCATION AND TRAINING

PhD Student

University of Tuscia, Department of Ecological and Biological sciences. [01/11/2024 – Current]

City: Viterbo | Country: Italy |

Field(s) of study: Ecology and sustainable management of environmental resources | **Thesis:** Studies of prebiotic chemistry and biotechnology in space and terrestrial environments

The project integrates prebiotic chemistry, catalysis, and biotechnology to understand the origins of life and develop sustainable technologies for space missions and terrestrial applications. It examines the kinetic and thermodynamic properties of extraterrestrial analog minerals in the synthesis of organic molecules under radiation and prebiotic conditions, focusing on Martian analog minerals from Pantelleria's Lake Venus (simulating Martian environments). Additionally, the project explores innovative methods for CO₂ capture and conversion into high-value organic compounds, using photocatalytic mineral systems like titanium oxides and enzyme-based systems on hybrid nanoplatforms. These approaches aim to develop synthetic photosynthesis for carbohydrate production. Nanobiotechnological platforms incorporating enzyme cascades are designed to optimize reaction conditions for efficient transformation processes.

LICENSE TO PRACTICE

University of Tuscia, Department of Ecological and Biological sciences. [02/02/2024]

City: Viterbo | Country: Italy | Final grade: 48/50

MASTER'S DEGREE IN BIOLOGICAL AND MOLECULAR SCIENCE (LM-6)

University of Tuscia, Department of Ecological and Biological sciences. [22/02/2023]

City: Viterbo | Country: Italy | Final grade: 110/110 cum laude | **Thesis:** Development of multienzyme cascade systems on electroactive hybrid lignin nanoparticles for the synthesis of bioactive molecules

BACHELOR'S DEGREE IN BIOLOGICAL SCIENCES (L-13)

University of Tuscia, Department of Ecological and Biological sciences. [15/12/2020]

City: Viterbo | Country: Italy | Final grade: 110/110 cum laude | Thesis: Protein misfolding: focus on alpha synuclein

HIGH SCHOOL DIPLOMA

Liceo Scientifico G. Colasanti [2017]

City: Civita Castellana | Country: Italy | Final grade: 100/100

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING B2 READING B2 WRITING B2

SPOKEN PRODUCTION B2 SPOKEN INTERACTION B2

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

DIGITAL SKILLS

Microsoft Excel / Microsoft Office / Software for Chemistry (TopSpin, Olex, Chemdraw) / Outlook / Use of PubMed / Zoom / Microsoft Powerpoint / Microsoft Word

PUBLICATIONS

One-pot synthesis of (S)-flavanones by a double-face promiscuous chemo-enzymatic cascade of lipases

V. Ubertini, E. Capecchi, E. Tomaino, D. Piccinino, E. De Marchi, B. M. Bizzarri, G. Carotenuto, T. Castrignanò, R. Saladino

ChemCatChem, 2024, 16(23), e202400974

Synthesis of Benzoxazines by Heterogeneous Multicomponent Biochemo Multienzymes Cascade Reaction

E. Tomaino, E. Capecchi, V. Ubertini, D. Piccinino, B. M. Bizzarri, and R. Saladino

Journal of Organic Chemistry, 2024, 89(4), pp. 2343–2350

Synthesis of Bioactive Hydroxytyrosol Esters via Multienzyme Cascade on Electroactive Melanin Lignin Nanoparticles: A One-Pot Approach without Extra Reducing Agents

D. Piccinino, V. Ubertini, E. Capecchi, E. Tomaino, V. Gigli, R. Saladino

ChemCatChem, 2023, 15(14), e202300533

PROFESSIONAL SKILLS

Professional skills

1. Knowledge of classic procedures and eco-sustainable procedures for the functionalization of materials and nanomaterials (enzyme immobilization techniques)
 2. Experience in the characterization of bioactive molecules via spectroscopic methods such as nuclear magnetic resonance (^{13}C NMR and ^1H NMR), Fourier transform infrared spectroscopy (FTIR)
 3. Experience in the use of chromatographic equipment (HPLC) and gas chromatography-mass spectrometry (GC-MS) for the structural characterization of organic compounds
 4. Knowledge of the methods of morphological characterization of nanomaterials with electronic and optical microscopy techniques such as scanning electron microscopy (SEM) and scanning electron microscopy with field emission source (FE-SEM)
 5. Basic skills of electrochemical techniques for the characterization of immobilized redox enzymes such as cyclic voltammetry (CV) analysis
 6. Experience in the characterization of enzymes via spectrophotometric analyses
 7. Experience in the application of the main laboratory methods for the purification and extraction of biologically active substances
 8. Experience in the application of the main biocatalysis methods for the synthesis of compounds with potential biological activity
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I authorize the processing of my personal data pursuant to Legislative Decree 30 June 2003, n. 196 and the GDPR (EU Regulation 2016/679)



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