

Programme
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2th July

Sunday

Night – Dinner and knowing each other

3th July

Monday

Opening Session

Welcome from President of the Organic Division of the Italian Chemical Society

8.30 – 9.00 Simonetta Fraschetti

University of Naples Federico II (ITALY)

Marine biodiversity is a cornucopia for humans: challenges and opportunities

Session I: Natural Products Drug Discovery.

9.00 – 9.30 William Gerwick

Scripps Institute of Oceanography, University of California, San Diego (USA)

Drugs from the Sea: Past, Present and the Future Prospects

9.30 – 10.00 Ida Chiara Guerrera

INSERM- Necker Proteomics, Paris (FRANCE)

The impact of an ultradeep proteomic approach in cosmeceutics: the effect of Oenothera biennis cell extract on senescent human dermal fibroblasts.

10.00 – 10.30 Vitor Vasconcelos

University of Porto and CIIMAR (PORTUGAL)

Cyanobacteria Natural Products: toxins, nutraceuticals and drugs- do they all interest us?

Interactive session I

10.30 – 11.30 Roberta Teta and Massimiliano Lega

University of Naples Federico II, University of Naples Parthenope (ITALY)

Multidisciplinary strategies for biomonitoring: the combined study of bioindicators as source of natural products and for environmental impact assessment

The interactive session will consist of a walkthrough on the basics of the fast detection strategy for biomonitoring via cyanobacteria. The main steps of the strategy will be illustrated: 1) remote (satellite) and proximal (drone) sensing for target site identification 2) site survey and sampling; 3) characterization of the species and bio/chemical analyses (molecular networking). Students will participate to a small-scale indoor mission and to an environmental crime scene investigation

11.30-11.50 coffee break

11.50 – 12.40 (8 x 5' each and discussion)

The vision of young scientists' Short presentation by participants

11.50-11.55 Alessandro Coppola

University of Messina

Sustainable exploitation of discarded fisheries resources and development of added value bioproducts

11.55-12.00 Teresa De Rosa

University of Naples Federico II

Monitoring of cyanobacterial blooms along the Campania coastline: anabaenopeptins detection in the food chain

12.00-12:05 Viviana Di Matteo

University of Naples Federico II

Stereostructural determination of a new cyanochelin from the cyanobacteria Leptolyngbya

12:05-12:10 Alica Fishle

University of Munster

Turning perspectives: biological potential of semi-synthesized phenylspirodrimane-derivatives from Stachybotrys chartarum

12:10-12:15 Jaime Abdiel Lazaro Garcia

University of Haifa, School of Marine Science Leon H. Charnel

Methane sources in Nitrogen-depleted Oceans

12:15-12:20 Anna Elisabetta Maccaronello

University of Catania

Pistacia vera shells: A source of phenolic compounds with antioxidant and antihyperglycemic activity

12:20-12:25 Alice Maiocchi

University of Milan

Exploring the scope of minor cannabinoids: synthesis and evaluation of c3 and c4 derivatives

12:25-12:30 Stefano Salamone

University of Piemonte Orientale

5-methoxy-9,10-dihydrodenbinobin: a new derivative of the anti-tumour denbinobin in Cannabis sativa L. chemotype V

12:30-12:40 Q&A

12.40-14.00 Lunch and Digital Poster Session

Interactive Session II

14.00 – 15.00 Stefano Cinti, Valeria Costantino, Germana Esposito, Giorgia Oliviero, Laura Steindler

Knowing each other, CV and poster Q&A.

15.00-17.00 Laura Steindler

University of Haifa, Haifa (ISRAEL)

Host-microbiota interactions with marine sponges as model system

Part I. Molecular mechanisms underlying holobiont interactions.

In this seminar Dr. Steindler will present comparative genomics approaches used to understand the molecular interplay between animal hosts and their associated microbiota. The molecular mechanisms can involve evasion from recognition by the host or hijacking of the host's immune defense systems. Interestingly, there is a thin line between symbionts and pathogens!

Part II. Holobiont integrated metabolism and its impact on the environment.

In this seminar Dr. Steindler will present metatranscriptomics/metagenomics approaches used to study the integrated metabolism of an animal host and its associated microbiota. In the case study presented, carnitine, a substance derived from animal cell debris, is utilized as a substrate to produce trimethylamine. Thereafter, the combined metabolism of diverse animal-associated bacteria is predicted to both produce and consume methane, a potent greenhouse gas.

Part III. Interactive workshop between chemists and biologists.

In this workshop, we will discuss interdisciplinarity of chemistry and biology. Students from diverse scientific backgrounds, will propose ideas on how they would use chemistry techniques to advance our understanding on host-microbe interactions.

17.00-18.30 Stefano Cinti, Valeria Costantino, Germana Esposito, Giorgia Oliviero, Laura Steindler

Introduction to Social/Creative Pressure test

19:45 Dinner

21:00 WORKING @YOUR Project Pressure Test

4th July

Tuesday

Session II: Biosensing

9.30 – 10.00 Helder Santos

University Medical Center Groningen/University of Groningen (NETHERLANDS)

Designing advanced nano-biomaterials for biomedical applications

10.00 – 10.30 Nicola Borbone

University of Naples Federico II (ITALY)

Noncanonical DNA nanostructures: from simple “oddities” to promising therapeutic, diagnostic and nanotechnological tools

10.30 – 11.00 Vincenzo Cerullo

Faculty of Pharmacy, University of Helsinki (FINLAND)

Dressing up viruses to fool cancer: novel pipeline for personalized cancer vaccine

11.00-11.20 coffee break

11.20-11.50 Luca De Stefano

CNR, ISASI, Naples (ITALY)

Diatoms Nanotechnology: from biosensors to drug delivery

11.50 – 13.00 (12 x 5' each and discussion)

The vision of young scientists' Short presentation by participants –

11.50-11.55 Sarah Ben Haj Fraj

Faculty of Sciences of Monastir

Fluorescent Schiff base-modified nano-cellulose based for dual selective detection of Fe²⁺ and Fe³⁺ in semi-aqueous media and applications in biological samples.

11.55-12.00 Vincenza Casella

University of Messina

Revealing the biosynthetic potential of marine microorganisms: production of novel biosurfactants and siderophores for biotechnological applications

12.00-12:05 Ernesto Gargiulo

University of Naples Federico II

Phytochemical composition of a cannabigerol-rich Cannabis sativa strain expands chemical and biological space of phytocannabinoids

12:05-12:10 Daria Di Prisco

University of Naples Federico II

Interaction studies between DNA G-quadruplexes and natural compounds

12:10-12:15 Diana Resende

University of Porto

Siderophores-metal thievery weapons in environmental research

12:15-12:20 Sabrina Giordano

University of Naples Federico II

Functionalization studies of peptide-based hydrogels with nucleic acid analogues

12:20-12:25 Costanza Ragozzino

University of Messina

*Combining OSMAC and metabologenomic approaches to discover novel biosurfactants from a marine *Rhodococcus* sp. I2R*

12:25-12:30 Sara Martino

University of Campania "Luigi Vanvitelli"

Electrospun Nanofibers functionalized with in situ synthesized Gold Nanoparticles as SERS biosensor for detecting microRNAs as biomarkers of Laryngeal Cancer

12:30-12:35 Ben Shahar

The Hebrew University of Jerusalem

Extraction, isolation and utilization of algae antimicrobial substances against plant pathogens

12:35-12:40 Giovanna Santaniello

University of Campania "Luigi Vanvitelli"

Mono-Acyl-Glycerides production in microalgae and their anticancer activity

12:40-12:45 Laura Schmitt

Heinrich-Heine University Duesseldorf

Elimination of chemotherapeutic-resistant tumors by natural product-induced cell death

12:45-12:50 Joyce Rodriguez

University of Campania "Luigi Vanvitelli"

NMR-based metabolomics reveals insights on the phytotoxicity of selected invasive plants in the Mediterranean basin

12:50-13:00 Q&A

13.00-14.00 Lunch

Interactive Session III

14.00 – 16.00 Stefano Cinti

University of Naples Federico II, Naples (ITALY)

Applying electrochemical biosensors to everyday life

Nowadays sensors and biosensors are spread worldwide for the use of non-experts to have quick information on clinical, environmental and foodstuff samples. Some examples are represented by the glucometer for diabetes patients, pregnancy test and, unfortunately, COVID-19 test. These examples represent the main achievement of the field of sensors and biosensors. However, a huge possibility is to design the specific analytical device depending on the necessity. How a (bio)sensor is made? Does all the (bio)sensors exploit the same principle? These are only some questions that will allow students to understand the how the world of (bio)sensors is wide and multidisciplinary. In addition, an enzymatic electrochemical biosensor will be designed and applied in real-time towards the analysis of commercial beverages, in the frame of quality control.

16.00 – 17.00 (10 x 5' each and discussion)

The vision of young scientists' Short presentation by participants –

16:00–16:05 Nadia Benedetto

University of Basilicata

The promising future of Vitis vinifera L. by-products for the development of anti-obesity food supplement

16:05–16:10 Vittorio Carlucci

University of Basilicata

Citrus medica L. cv Diamante Liscia, the daddy citrus fruits, a promising health promoting extract for industrial scale-up

16:10–16:15 Alexander Dushkov

Institute of Molecular Biology “Roumen Tsanev”, Bulgarian

Investigating the in vitro antitumor and antiproliferative potential of an Amanita muscaria extract against lung and prostate cancer cell lines

16:15–16:20 Angela Marseglia

University of Naples Federico II

Recognition mechanisms of bacterial glycans by host immune receptors

16:20–16:25 Emma McDonald

University of Naples Federico II

MiRNA-214 in Cardiovascular Disease

16:25–16:30 Antonella Miglione

University of Naples Federico II

Development of a screen-printed electrochemical biosensor for organophosphates detection directly on fruit peels

16:30–16:35 Meryam Chelly

University of Messina

Multifunctional plants applied in nanotechnology, cosmetology and physiology

16:35–16:40 Ada Raucci

University of Naples Federico II

Design of a paper-based electrochemical strip for miRNA -detection related to lung cancer

16:40–16:45 Claudia Sciacca

University of Catania

Synthesis of bioactive neolignan obovatol and analogues as hypoglycemic agents

16:45–16:50 Salvatore Princiotto

University of Milan

Synthesis of a small collection of resveratrol-related stilbenoids and evaluation of their cytotoxic activity

16:50–17:00 Q&A

17.30- Tour Cristo MarateaSwimming pool

20.30 Dinner

5th July

Wednesday

Session III: Natural Products Genome Mining – Session: From genes to molecules

9.00 – 9.30 Tilman Weber

Technical University of Denmark, Kongens Lyngby (DENMARK)

Engineering actinomycetes for the discovery and analysis of natural products

Interactive Session IV

9.30 – 11.00 Gerardo Della Sala

Stazione Zoologica Anton Dohrn, Naples (ITALY)

The “Genome mining interactive session” will highlight how genomics has given new pulse to natural product discovery in recent years. The first part of the session will introduce the biosynthesis of polyketides (PK) and non-ribosomal peptides (NRP). The second part aims to provide the tools to unlock the PK and NRP biosynthetic genes and predict the chemical structures of the encoded metabolites through the analysis of biosynthetic gene clusters by using the Antismash platform. The practical session will give the chance to get familiar with this bioinformatic tool. **Students are encouraged to bring their notebooks as they will be asked to “play” with Antismash and solve some “genome mining exercises”.**

11.00-11.30 Coffee break

11.30- 12.00 Presentation of selected candidates (Job interview-by Indena)

12.00-12.30- Christian Zidorn

Kiel University, Kiel (GERMANY)

Field trip introduction. Excursion planning, plant determination, collection of plants for scientific studies, and proper documentation of plant collections for phytochemical and phytopharmacological studies.

After a short introductory lecture highlighting the challenges of how to plan an excursion, how to determine plants, and how to document properly such collections, we will together have a close look at the biodiversity close to Maratea during a dedicated field trip.

The region around Maratea offers a high level of biodiversity due to the structured landscape, a variety of soil types, and its Mediterranean climate.

In conclusion, I will give a brief introduction into the Mediterranean Flora as source of novel bioactives.

Due to the hilly environment proper equipment (in particular shoes, but also dresses for outdoor activities, including sunscreen and some water) and a minimum level of fitness will be required. In case you have, please bring your own camera and books for plant determination.

12.30 – 13.30 Light Lunch

13.30-16.30 EVRA s.r.l. tour

17.00-19.30 Guided Bucolic Walk

21.00 Dinner and Disco party

6th July

Thursday

Paprikanet project session presentation

9.00 – 9.30 Luigi Milella (Unibas)

Session IV: Food and Plant Session

9.30 – 10.00 Giovanni Scapagnini

University of Molise, Isernia (ITALY)

Foods, aging and neurodegenerative disorders

10.00-10.30 Carmen Rubio

Universidad de La Laguna, La Laguna (TENERIFE)

Risk communication strategies in food safety. Case studies.

Plant Session

10.30-11.00 Umberto Ciriello

Linnea, Riazzino (SWITZERLAND)

Impurities, how an enemy can help improving the Industrial Processes!

11.00-11.30 Daniele Passarella

University of Milan, Milano (ITALY)

Nature as source and inspiration for new biologically active compounds: cancer, neurodegeneration and SARS-CoV-2 infection as targets

11.30-12.00 Coffe-break

12.00-13.30 Pressure test PPT evaluation: team leader presentations

13.30-14.30 Lunch

16.00 -18.00 Indena Awards Ceremony

Award ceremony to the participants selected by the Indena/ISSNP Committee

ISSNP Awards:

Pressure test Best Team

Best Oral

Best Poster

19.00 Closing remarks and beach party-ISSNP take-aways: what are the next steps?