ISSNP 2023, 5th Edition, July 2nd-7th

Sunday Night: dinner and knowing each other

Monday 3rd July
Opening
Welcome from the president of the Organic Division of the Italian Chemical Society
8.30 – 9.00 Simonetta Fraschetti
University of Naples Federico II, Naples (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-Platform Proteomique, 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, Porto (PORTUGAL)
Cyanobacteria Natural Products: toxins, nutraceuticals and drugs- do they all interst us?

Interactive session I

10.30 - 11.30 Roberta Teta and Massimiliano Lega
University of Naples Federico II, University Parthenope, Naples (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 (5 x 10' each)

The vision of young scientists' *Short presentation by participants –*
Do not miss the chance to present your research!

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, Antonio Turturo
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.

17.30-19.00 Stefano Cinti, Valeria Costantino, Germana Esposito, Giorgia Oliviero, Laura Steindler, Antonio Turturo
Introduction to Social/Creative Pressure test

20.30 Dinner

Tuesday 4th July

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 Vincenzo Cerullo
Faculty of Pharmacy, University of Helsinki (FINLAND)
Dressing up viruses to fool cancer: novel pipeline for personalized cancer vaccine
10.30 - 11.00 Nicola Borbone
University of Naples Federico II, Naples (ITALY)
Noncanonical DNA nanostructures: from simple "oddities" to promising therapeutic, diagnostic and nano-technological tools
11.00-11.30 Luca De Stefano
CNR, ISASI, Naples (ITALY)
Diatoms Nanotechnology: from biosensors to drug delivery

11.30-11.50 *coffee break*

11.50 – 13.00 (7 x 10' each)

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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 designed and applied in real-time towards the analysis of commercial beverages, in the frame of quality control.

16.00 - 17.00 (6 x 10' each)
The vision of young scientists' *Short presentation by participants –*
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17.00- 20.30 WORKING @YOUR Project Pressure Test

21.00 Dinner and Disco party

Wednesday 5th July

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 own notebooks 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

Thursday 6th July

Paprikanet project session presentation

9.00 - 9.30 Luigi Milella
University of Basilicata, Potenza (ITALY)

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, Milan (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: the team leaders present the group projects

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 takeaways: what are the next steps?