

22 APRILE, VENERDÌ

16:30 - 17:30

AULA MAGNA

CENTRO CONGRESSI PARTENOPE

NET-1

MARE NOSTRUM: A SUSTAINABLE EXPLOITATION OF THE
MEDITERRANEAN RESOURCES DRIVEN BY INTERNATIONAL
COOPERATION AMONG MUNA PARTNERS

MUNA

INTRODUZIONI

V. Costantino, Dipartimento di Farmacia, Session Coordinator: R. Alfano A. Arena, Dipartimento di Giurisprudenza, Università di Napoli Federico II

CONTRIBUTI

The EU Green Deal: boosting international cooperation and capacity building in the Mediterranean basin

R. Antidormi, EU policy officer Marine Environment Unit e negoziatrice internazionale all'interno della Barcelona Regional Sea Convention e dell'IMO

Sustainability in policy cooperation and projects in the Mediterranean region

S. Dotto, Directorate General for Neighborhood and Enlargement Negotiations (NEAR)

Spring water qualitative aspects in the central Jordan valley / eastern catchments - Palestine

M. Ghanem, Birzeit University

NIR spectroscopy to combat Fish Fraud

N. Dalal, L. Ruggiero, A.G. Caporale, P. Adamo, Dipartimento di Agraria, Università di Napoli Federico II

Promising Applications of Metal Organic Frameworks (MOFs) in Wastewater Treatment through Adsorption and Photodegradation

M. Hmoudah, V. Russo, M. Di Serio, Dipartimento di Scienze Chimiche, Università di Napoli Federico II, Chemical Engineering Department, An-Najah National University

Policies for sustainability in freight and logistics: how to improve implementation in port areas

V. Marzano, Dipartimento di Ingegneria Civile, Architettonica e Ambientale, Università di Napoli Federico II; M. Paradiso, DSU Dipartimento degli Studi Umanistici, Università di Napoli Federico II

ABSTRACTS

SPRING WATER QUALITATIVE ASPECTS IN THE CENTRAL JORDAN VALLEY / EASTERN CATCHMENTS - PALESTINE

M. Ghanem, Birzeit University

The objective of this study is to investigate the hydrogeological characteristics of the spring aquifer system in the central eastern Jordan valley in Jericho areas and to determine the influence of its hydrochemical characteristics in qualitative potentials. The springs are used for domestic water supplies and irrigation in Jericho areas, which is considered as one of the most important areas in the West Bank feeding from the "spring system complex". From the geological and structural point of view, the area is considered to be as complex in regards to the major structural features of faults and folds. The physical properties (pH, DO, temperature, TDS and EC) were interpreted. The hydro-chemical concentration major ions of Ca^{2+} , Mg^{2+} , Na^+ , K^+ , Cl^- , SO_4^{2-} , NO_3^- and HCO_3^- were analyzed for the spring water system samples. The microbiological parameters of Total and Fecal coliforms were analyzed for the targeted springs and indicates of no detected pollution. The hydrochemical characteristics of the spring waters, distributed west-east indicates of no ion concentrations trends.

NIR SPECTROSCOPY TO COMBAT FISH FRAUD

N. Dalal, L. Ruggiero, A.G. Caporale, P. Adamo, Dipartimento di Agraria, Università di Napoli Federico II

Mediterranean Sea accounts for one third of all fish eaten in the more than 20 Mediterranean countries while the rest 2/3rd is imported. Europe imports almost 75% of its seafood with number predicted to rise in the coming years. Food fraud is defined as "food which is deliberately placed on the market for financial gain, with the intention of deceiving the consumer". Seafood frauds threaten the local fishing industry with severe economic consequences while damaging the reputation of local/national markets and decreasing consumer trust. Seafood frauds involve origin mis labeling

where geographical origin of illegally harvested fish is concealed and species substitution which involves replacement of low-value species for a more expensive one for economic gain. Selling frozen/glazed fish as fresh is also a common practice used to fetch higher price. The global seafood chain is extremely complex web of stakeholders with no actual way to tell where the seafood was exactly fished at. Further processing of fish (cleaning, removing skin, fins, and tail) to make ready-to-eat products makes species detection even harder when morphological features are not visible. An INTERPOL–Europol investigation conducted in 2015 demonstrated that fish traded internationally was the third highest risk category of foods with the potential for fraud, while in 2013 the European Commission classified fish in the second-highest category for fraud. Owing to the complex global scenario, traceability of seafood becomes even more important to protect consumer's rights and ensure safety in food systems.

The near-infrared (NIR) region of the electromagnetic spectrum is located between 700–2500 nm (12,500–4000 cm^{-1}). NIRs is a molecular/vibrational spectroscopy technique used to study the interactions of electromagnetic waves with a sample. Molecules absorb near-infrared radiation of defined energy at specific wavelength which results in peaks representing chemical bonds present in the samples. The NIR spectra is product of overtone, vibration and combination bands arising from C—H, O—H and N—H bonds present in the sample. Apart from this, it is a cost-effective, non-destructive, and rapid technique which can be translated from laboratory scale to field scale with ease. The chemical composition of fish is a function of its surroundings. It depends on its place in the foodweb, food source, water temperatures and weather conditions. The chemical composition of same species growing in two different regions can vary differently due to varied food sources and this change can be detected. Near-infrared spectroscopy (NIRs) can thus provide useful information about chemical composition of the fish and aid the creation of accurate chemometric-based traceability and freshness models. Our initial findings suggest that Principal component analysis (PCA) of the NIR spectra was able to distinguish between fresh/un-fresh, fresh/frozen fish with high accuracy. PCA followed by Linear discriminant analysis (LDA) was also able to distinguish with high accuracy between fish fished from coast of Italy, Spain, and Tunisia, all a part of Mediterranean Sea. Our early findings and literature review suggest that NIR scan be applied to construct a LDA based traceability model to prove geographical provenance of fish.

In this context, SUREFISH*PRIMA (<https://surefish.eu/>) project aims at deploying innovative solutions to achieve unequivocal traceability of Mediterranean fish products, preventing possible frauds. It gathers 13 partners from Italy, Spain, Tunisia, Egypt, Lebanon and 4 pilot sites fishing/growing and processing the following fish species: anchovy (*Engraulis encrasicolus*), sardine (*Sardina pilchardus*), bluefin tuna (*Thunnus thynnus*), tilapia (*Tilapia* spp.) and red mullet (*Mullus surmuletus*). In the framework of WP3, we will develop and harmonize multi-element, isotope and NIR based analytical methodologies to trace the provenance of these Mediterranean fish species. Basically, we will analyze fresh or thawed fish meat and additional samples such as fish bones and otoliths, aquaculture

feeds and sea or fresh waters. The findings will be gathered in a database useful for comparison with data from literature and other FAO fishing areas. *SUREFISH PRIMA project: Fostering Mediterranean fish ensuring traceability and authenticity.<https://surefish.eu/PRIMA> Call 2019 Section 1-Agro-food Value Chain 2019, Topic 1.3.1.

PROMISING APPLICATIONS OF METAL ORGANIC FRAMEWORKS (MOFS) IN WASTEWATER TREATMENT THROUGH ADSORPTION AND PHOTODEGRADATION

M. Hmoudah, V. Russo, M. Di Serio, Dipartimento di Scienze Chimiche, Università di Napoli Federico II, Chemical Engineering Department, An-Najah National University

Metal organic frameworks (MOFs) are porous compounds that represent the 2D and 3D levels in reticular chemistry. Metal ions and organic linking molecules are connected to create these infinite clusters that are widely studied nowadays in the literature. The captivating features of these nanostructures such as high porosity, designability, stability, and scalability will open the door wide for these compounds as futuristic commercial competitive materials. Furthermore, the interest in such materials continues to grow dramatically over the last decade due to the extraordinary features they exhibit in terms of infinite structures and facile synthesis approaches. These compounds have been investigated for numerous revolutionizing applications in wastewater treatment, gas purification, water harvesting, light harvesting and energy conversion, separation processes, drug delivery, and catalysis. Within these applications, MOFs can play a significant role in wastewater treatment due to their flexibility, unique properties and the tunability of their features. The scope of this talk is to provide a comprehensive description on the promising adsorptive and photocatalytic application of MOFs for the removal of organic emerging contaminants from wastewater. Up to now, prospect of wide-scale implementation of MOFs in wastewater treatment needs further investigation in terms of scaled up MOFs characteristics, regeneration, and environmental consideration. However, this kind of research will be of tremendous impact in Palestine due to the current stressed political situation, as these compounds can be useful to treat wastewater affordably and effectively.

POLICIES FOR SUSTAINABILITY IN FREIGHT AND LOGISTICS: HOW TO IMPROVE IMPLEMENTATION IN PORT AREAS

V. Marzano, Dipartimento di Ingegneria Civile, Architettonica e Ambientale, Università di Napoli Federico II; M. Paradiso, DSU Dipartimento degli Studi Umanistici, Università di Napoli Federico II

The international and European institutional commitments push towards the ecological transition of the marine industry and port areas. Ports, interconnection nodes for the movement of goods, people, carriers are actually also geo-economic areas of multimodal localization of transport, industrial sites and services with significant tertiary activities in addition to logistics. The sustainability of ports therefore implies a vision of the entire local and external maritime cluster to promote effective governance with a territorial management model that pragmatically assesses the costs of sustainability. This paper, based on multi-stakeholder analyses at different geographical and sectoral scales, proposes reflections for policy making on the cost of sustainability and for the improvement of EU and national sustainability policies. Indeed, the effects of port and logistical decisions reverberate rapidly in the liquid marine space at the Mediterranean and European scale and lead to scientific and entrepreneurial cooperation.