HOSTING GROUPS FOR INTERNATIONAL MOBILITY

Circular Marine Economy Research Group

The research group coordinated by Prof. Vincenzo Arizza and Prof. Mirella Vazzana, with the collaboration of Dr. Manuela Mauro, Prof. Aiti Vizzini and Prof. Claudio Luparello, is actively engaged in developing innovative models of circular economy in marine ecosystems, aiming to transform marine biological resources, by-products, and unused biomass into value through sustainable and regenerative processes. The main objective is to promote the efficient and responsible use of marine biomass, reducing waste and fostering the reuse of natural resources within virtuous production cycles. In this context, the group focuses on the extraction and characterization of bioactive molecules from marine organisms and biological residues, assessing their potential applications in health, environmental, and bioeconomic sectors. In parallel, research activities include the monitoring of marine biodiversity as a tool for assessing ecosystem health and guiding conservation and restoration strategies. The group adopts a highly interdisciplinary approach, combining expertise in molecular biology, zoology, cytology, and ecotoxicology, and employing advanced methodologies such as environmental DNA (eDNA) analysis and the study of cellular and molecular biomarkers, in support of a circular management of marine resources. Through research oriented toward sustainable innovation, the team contributes to building a model of circular blue economy, integrating natural capital valorization, marine biodiversity conservation, and ecosystem regeneration.

Team members:

Prof. Vincenzo Arizza

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Selected publications:

Mauro, M., Pinto, P., Settanni, L., Puccio, V., Vazzana, M., Hornsby, B. L., Fabbrizio, A., Di stefano, V., Barone, G., Arizza, V. (2022). Chitosan film functionalized with grape seed oil—Preliminary evaluation of antimicrobial activity. Sustainability, 14(9), 5410.

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Longo, F., Attanzio, A., Marretta, L., Luparello, C., Indelicato, S., Bongiorno, D.,Barone, G., Tesoriere, L., Giardina, I.C., Abruscato, G., Perlotti, M., Hornsby, L.B., Arizza, V., Vazzana, M., Vizzini, A., Martino, C., Listro, A., Queiroz, V., Fabbrizio, A., Ciaccio, P.S.F., Cascioferro, S.M., Di Gaudio, F., Mauro, M. (2025). Bioactive Molecules from the Invasive Blue Crab *Callinectes sapidus* Exoskeleton: Evaluation of Reducing, Radical Scavenging, and Antitumor Activities. Marine Drugs, 23(1), 45. https://doi.org/10.3390/md23010045

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the Exoskeleton of Procambarus clarkii: Reducing Capacity, Radical Scavenger, and Antitumor and Anti-Inflammatory Activities. Biomolecules, 14(12), 1635.

Mauro, M., Cammilleri, G., Celi, M., Cicero, A., Arizza, V., Ferrantelli, V., & Vazzana, M. (2022). Effects of diclofenac on the gametes and embryonic development of *Arbacia lixula*. The European Zoological Journal, 89(1), 535-545. https://doi.org/10.1080/24750263.2022.2059582