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CHEMOECOLOGY GUIDED DISCOVERY OF DRUG LEADS FROM SOUTH CHINA SEA MARINE INVERTEBRATES

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Biography

He received his Ph.D. degree in Natural Product Chemistry in 1997 from Institute of Chemistry of Bio-molecule-CNR & Naples University of Italy. From 1997 to 1999, He spent two postdoctoral years at the Institute of Chemistry of Bio-molecule-CNR in Naples, with Prof. Guido Cimino, working in the field of Marine Natural Products. From 1999 to 2000 he was a TBRS postdoctoral fellow in Hokkaido University, Japan, working with Prof. Jun'ichi Kobayashi. In year 2000, he moved, as a Professor of Chemistry, to the Shanghai Institute of Material Medica, Chinese Academy of Sciences. In these years his main research interests have been in the field of the chemistry of natural products from marine organisms, such as algae, mangrove, porifera, gorgonians, molluscs, in particular focused to the isolation, purification, and structural elucidation of chemical mediators and to biological studies. The more recent interests are directed to the chemical ecology of unprotected marine molluscs from South China Sea and Chinese mangrove plants.

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Natural products have played a significant role in the drug discovery process throughout the last hundreds years. What is the best strategy to investigate the biological potentialities of secondary metabolites? It is generally accepted that there are two ways to explore the pharmaceutical potentialities of natural products. The first way is so called bioassay guided isolation of bioactive natural products; the second one is so called random screening methodology. In fact, every procedure could be only partially satisfactory. Apart the above mentioned two solutions, an alternative way could be a good choice through studying the compounds that really play a biological role in the organism where they are present. This could be the starting point to discover other biological potentialities. Of course, to perform studies like these one needs a careful selection of promising biological systems and, also, the close collaboration among chemists, biologists and pharmacologists. Trying to follow this bio-chemical approach some years ago we started to investigate marine nudibranchs that are extremely interesting from an ecological point of view. In fact, these molluscs are completely devoid of the mechanical protection of the shell. But, in spite of this apparent vulnerability, they are rarely victims of predators. This is due to a series of defensive strategies that include the use of chemicals that either derive from their food habits or are biosynthesized *de novo* by themselves. In this lecture we will report the recent chemical studies on opisthobranch molluscs collected from South China Sea. All work has been performed in close collaboration with marine biologists who have correctly submitted the biological problems to the chemical analysis, and with pharmacologists who have carried out bioassay based on the clue provided through chemoecology studies.