LETTER TO THE EDITOR

Marine bioprospection: what means?!

Marine bioprospection is a term that usually refers to question: what is this? When we speak about prospecting, we usually think about 'searching for petroleum', isn't it?! This induced analogy should give pride to Brazilians, after all to associate with one of largest companies of oil exploration, the Petrobras, is not a small thing. With the same meaning, although with a distinct focus, marine bioprospection means to prospect (probe) the marine environment (or aquatic, in a broad sense) for living organisms with potential to new discoveries and/or applications. As example of this prospecting resulted in a commercial product: the zidovudine or azidothymidine (AZT), used in AIDS treatment. This medicine has synthetic derivates that, originally, were isolated from marine sponges, in the 1950 decade. Another case that has culminated in a well known product was the development of cephalosporin, an antibiotic produced by the fungus *Cephalosporium acremonium*, prospected and isolated of the Sardegna Sea, Italy. Marine bioprospection has already stimulated the modern biotechnology development, by the discovery of thermophile bacteria prospected of volcanic waters. These microorganisms synthesize the necessary enzymes for the optimization of one of the most utilized techniques in molecular biology, the polymerase chain reaction (PCR). The conotoxins, found in marine gastropods of the genus *Conus*, represent such a large diversity of peptides that in this sense they have been comparated to plant alkaloids and to secondary metabolites of microorganisms. Some of these toxins, which have been studied for the last 30 years, have already been commercialized. This is the case of the ziconotide (Prialt® Elan Pharmaceuticals, Inc.), the first intrathecal analgesic approved in United States. Since the discovery of morphine, 200 years ago, nothing similar to it had been developed. The ziconotide has therapeutic effects to chronic and severe pain, including patients in which the morphine did not result in the desired effect, even when administrated in areas near to the marrowbone. Thus, in spite of the marine bioprospection to contributing only to a small section of world market in biotechnology (7% of the biotechnology companies of the United States are related to marine biotechnology), it has produced great contributions to medicine, agriculture, natural products chemistry and environmental bioremediation. Only one more observation; when these researches were developed nobody could imagine the unfoldings and applications of these discoveries. Therefore, follow us studying the toxins, the microorganisms, the lectins, the polymers as chitosan and derivates, the PUFAs (polyunsaturated fatty acids), the antiviral, the antitumorals, the bioremediators of nitrobenzene, petroleum an other polluents, the carotenoids … and that from the ocean, a source of wealth that hasn't been properly tapped, we can learn to prospect solutions to problems such as desnutrition and the cure to diseases that until at now are incurable.

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