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ABSTRACTS

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BIOACTIVE MOLECULES FROM MARINE INVERTEBRATE ORGANISMS AS POTENTIAL TOOLS IN RESTORATION PROCEDURES

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Abstract

In the last decades molecular biology has provided innovative approaches in order to set up specific protocols for the conservation and restoration of cultural assets. In this study, which falls within the so-called field of Blue-biotechnology, new bio-reactive peptides isolated from marine invertebrate organisms (Cnidaria and Molluscs) were tested aim to bio-cleaning (proteolytic- peptides) the surfaces or to control (antimicrobial-peptides) the colonization of historic-artistic manufacts by fungi or bacteria. Particularly, the proteolytic-peptides showed hydrolytic activity, specific for animal-glue, in a range of temperatures of 4-37°C; than acting without heating the surface, by a controlled procedure and avoiding damages to the constitutive materials, all criteria required for conservative-restoration procedures. These hydrolases allow to carry out the removal of the protein layers in a controlled way, acting at the same temperature of the environment where the objects are restored (19-25.5 °C). Instead, the antimicrobial-peptides have been tested on a plethora of fungi and bacteria colonies and a specific activity, against *Micrococcus* spp., have been showed. We are testing the antimicrobial-peptides as a "biological biocide" in order to protect both organic and inorganic substrates.
We hypothesize that the use of these molecules will give an important contribution to the development of innovative and efficient technologies concerning bio-cleaning and antimicrobial growth protocols, according to conservative restoration procedures.

This study has been included in the research projects: It@cha, PON 01-00625 (FP) and PICS - Project for International Scientific Cooperation (MC –PR)