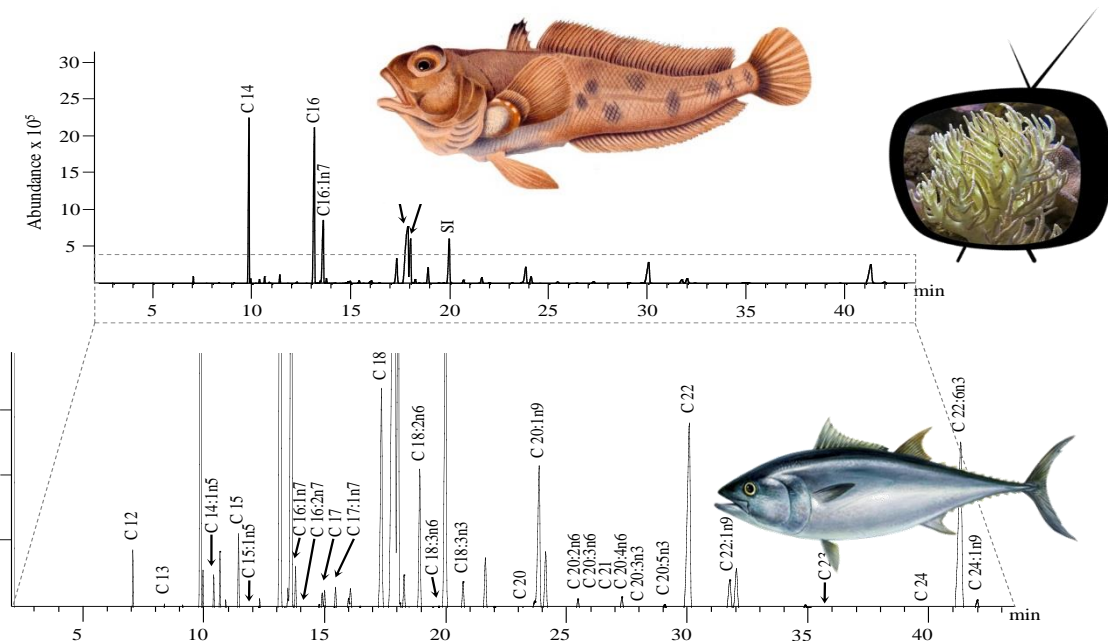


Martedì 21 Febbraio 2017 - ore 12 SALA RIUNIONI

SEMINARIO



“Fatty acids as biomarkers in marine ecological studies”

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ABSTRACT

The determination of fatty acids (FAs) composition in marine organisms has been useful until now for numerous goals, such as i) to characterize seafood from a nutritional point of view, ii) to gain information on food preferences and feeding history of marine organisms; (iv) to monitor the habitat conditions in order to guide environmental policies. The interest towards the relationship between environmental pollution or stressful habitat conditions and the biological responses of marine organisms based only on lipid and FAs as biomarkers, is currently increasing^{1,2}. Our goal is to study the relationship between FAs composition and environmental changes (such as increase in temperature or illumination) and internal factors (size and sex) on marine organisms. To reach this goal, we optimized and validated an analytical methodology based on microwave-assisted extraction of lipids from a freeze-dried sample, derivatization of lipid extract using NaOCH₃, and FAMES separation and identification by GC-MS³. The Antarctic teleost *Trematomus bernacchii*, a key species often used as bio-indicator, was used in an aquarium experiment to test the capability of adaptation of this fish to raising temperature. The FAs composition of the soft coral *Sinularia flexibilis* was studied under different conditions of illumination. In general, the results showed that lipid profile variations caused by environmental changes take place very quickly, but organisms are capable, in some cases, to adapt to new conditions, unless such conditions do not persist for long time. Finally, FAs composition of muscle of Atlantic Bluefin tuna was studied in relation to size and sex. Although no significant differences in FAs composition were found in relation to sex, males and females showed a different behavior of lipid profile in relation to size. Our studies highlight the suitability of FAs of marine organisms as biomarkers in marine ecological studies.

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2. Sprague, M., et al., 2012. Environ. Poll. 171, 61-71
3. Truzzi, C., et al., 2017. Chemosphere 173, 116-123