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EVALUATION OF CARCINOGENIC POTENTIAL OF POLYCYCLIC AROMATIC HYDROCARBONS IN MULLUS BARBATUS FROM THE SICILY CHANNEL BY TEFS

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Background: Several researchers have used fish as bio-indicators to assess the marine ecosystem status. Anthropogenic and industrial activities impact is low on the Sicily Channel, while there is an intensive sea traffic and a peculiar geochemical characterization of the bottom. The benthic red mullet (Mullus barbatus L.) was chosen as the bioindicator species because it is a territorial fish of commercial interest in fisheries, which has been used in several studies of coastal pollution monitoring.

Objectives: The aim of this study was to determine polycyclic aromatic hydrocarbons (PAHs) on wild Mullus barbatus caught in a sea area not contaminated by urban or industrial activities but with intensive sea traffic.

Methods: Using the toxicity equivalency factors (TEF) we also estimated the cancer potency of PAHs on their relative potency to benzo(a)pyrene (TEQ) for consumers. All samples eluate obtained by validated internal method was analyzed by UV-FL HPLC Prostar Varian. The absolute identification of PAH's were carried out with GC-MS triple quadrupole detector.

Results: ΣPAHs ranged from 4 to 137.9 ng g-1 (mean=26.5 ng g-1),our results for ∑TEQ range from 1.64 ng g-1 to 5.73 ng g-1 (mean= 3.01 ng g-1). ∑TEQ showed that all samples exceeded the law limit proposed for B(a)P in fish tissue.

Conclusions: Our study give an idea of the significant environmental impact that shipping has on the marine ecosystem, though it is often overshadowed by other human activities. Is highly recommended assess human exposure to carcinogenic substances through the assessment of ΣTEQ.

Keywords: Bio-indicators, cancer, pollution, PAH,TEF, TEQ .